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The ideas in this workbook for stimulating children's creative thinking are presented as integral parts of ten stories about a boy named Dudley Bond (a distant relative of a very famous spy), his friend Max (a professional bear), and his cousin Maybelle. They find their imaginations stretched by a backyard scientist-inventor who knows dozens of ways to think of new ideas for solving any kind of problem. These ideas, extended in the workbook for children to think about and work with, include methods for finding solutions--part changing, checkerboard, checklist, and finding something simple; four problem-solving steps; and discovering the importance of new ideas. Suggestions for activities accompany the stories, and a review concludes the workbook. (JM)

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THINKING CREATIVELY

A Guide to Training Imagination

By Gary A. Davis and Susan E. Houtman

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for Cognitive Learning and the

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Psychology

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Madison

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2

CS 003 463

DEAR STUDENT,

This workbook contains stories about a boy named Dudley Bond, a distant relative of a very famous secret spy, and his friend Max, a professional bear. Max is sometimes pretty funny, but doesn't seem to have a lot going for him upstairs, if you know what I mean. And then there's Maybelle, a cousin of Dudley's, who, until now, really hadn't thought much about new ideas.

Our most important character is Mr. I, a backyard-scientist-inventor who knows dozens of ways to think of new ideas for solving any kind of problem. Mr. I will show Dudley, Maybelle, and Max some of these ways to think of new ideas. Somehow, Max doesn't always get the drift, but Dudley and Maybelle find that Mr. I's clever methods for thinking of new ideas are actually fun, and much easier than they suspected. Both Maybelle and Dudley find they can think of lots more ideas by using some of Mr. I's thinking methods.

Once in a while, if there is something you should pay special attention to, whatever-it-is will be put in a box like this. Don't forget.

And once in a while, dear student, you will have a chance to think of new ideas for solving problems by using Mr. I's methods. It might even be fun to discover what good ideas you can think of.

THE CREATOR

CONTENTS

		page
I	Our Heroes Learn the PART-CHANGING Method	1
II	A Bigger and Better Motorcycle?	15
III	Maybelle Learns the CHECKERBOARD Method for Finding Ideas	26
IV	Would You Believe A Pedal-Powered Flying Saucer?	41
V	The Fearless Foursome use a CHECKLIST for Finding Ideas	55
VI	Dudley and Maybelle Learn to use Mr. I's CHECKLIST for Finding Ideas	68
VII	How in the World are Things Held Together?: Dudley, Max, and Maybelle Learn the FIND SOMETHING SIMILAR Method	81
VIII	Our Heroes Invent 2,016 Ice Cream Flavors	98
IX	Mr. I Teaches the Four Problem Solving Steps	117
X	Dudley and Max Learn to FIND Problems and Learn How Important New Ideas Are	134

CHAPTER I: Our Heroes Learn the PART-CHANGING Method

Quite often, on a good Tuesday or Saturday, Dudley Bond and his friend Max Bear (who always walks at Dudley's side and is therefore called Dudley's side man) would visit Mr. I. Mr. I is primarily a scientist and an inventor. He invents gadgets, games, labor-saving devices, and better ways of doing almost anything. In addition, since his interests are very wide, he also paints psychedelic pictures (and occasionally a fence), writes stories and, in his spare time, even does a little psycho-analysis on the side.

You see, Mr. I's main talent is thinking of new and unusual ideas. All the different activities in which he's interested have one thing in common: They all need lots of new and different ideas. New ideas are needed for finding easier and better ways of doing things, for creating new kinds of artwork or writing, and for finding new ways to have fun and enjoy life. A short time ago, for example, Mr. I invented a groovey electric-powered motorcycle for himself.

Actually, there is very little in the world which could not be improved with new and different ideas.

One particularly good Saturday, Dudley and his side man arrived at Mr. I's workshop and found him thinking and tinkering and muttering to himself as clever inventors sometimes do.

"Hi!" greeted Max, skillfully slamming the door on Dudley's fingers.

"Oh hello, Max, and come in, Dudley. How are you this fine Tuesday?"

"I believe it's Saturday, sir," corrected Dudley, sucking his fingers.

"Which Everyone knows," added Max, getting a be-quiet-bear stare from Dudley.

"Hmmm..Uh.. Oh, yes!" replied Mr. I. He was obviously thinking some very big thoughts. "I was just thinking of some new ways to improve my motorcycle."

"Is there something wrong with your electric motorcycle?" asked Dudley.

"Which I believe you just invented two weeks ago," added Max. Max had a habit of not liking to change things unless there is an urgent need, which means unless one is in great pain.

"My electric motorcycle works fine," smiled Mr. I, "but there's always room for improvement. Perhaps you two can help me find new ideas for improving my motorcycle after I show you one of my favorite idea-finding methods."

"Here we go again," thought Max to himself. Max wasn't always interested in new ideas--unless the ideas would help fill his ever-empty stomach!

"This procedure is actually quite simple," began Mr. I. "We call it the PART-CHANGING method for finding new ideas. First, we think of each part or quality of the thing you want to improve; then we think of different ways to change that part or quality."

"What's a 'quality'?" asked Max, remembering that it had been at least an hour since breakfast. "Would it help a hungry bear?"

"No," laughed Dudley, "a quality is like the color, or shape, or size of something. Everything has qualities. For example, an apple has the qualities of being red, round, and about the size of a baseball; its sweet taste and smell are also qualities."

"That's right," added Mr. I. "And the parts of the apple are the skin, the core, and the good part.

"Now," he continued, "if you wanted ideas for inventing new kinds of apples, if it were possible to invent new kinds of apples, you could take just one quality or part of the apple at a time, and think of ways to change that part."

One of the best ways to think of new ideas for changing or improving something is the PART-CHANGING method. Just think of one part (or quality) at a time, and think of ways to change that part.

This method for finding new ideas works on anything. Watch.

"Let's do a very simple problem using the PART-CHANGING method," said Mr. I. "Then we'll get back to inventing some bigger and better motorcycles."

"I can't wait," thought Max, nibbling at an imaginary apple. "I just can't wait."

Mr. I continued, "Let's pretend that you're a millionaire button manufacturer who wants to invent some new buttons. What are the important parts or qualities of a button?"

"Well," began Dudley, looking closely at his shirt front, "one quality is color, another is size, and ... hmmm. What else is there about a button?"

"What about type of material the button is made of?" replied Mr. I. "All buttons aren't made of plastic, you know. The shape would be another quality. Buttons don't have to be round, do they?"

"I guess not," answered Dudley, thoughtfully.

"Let's continue," said Mr. I, anxious to show Dudley and Max how easily they could find dozens of new ideas with the PART-CHANGING method. "We've listed four important parts or qualities of a button--its color, size, shape, and type of material it's made of.

Button Colors

Red

Orange

Yellow

Green

Blue

Purple

White

Black

Brown

Grey

Silver

Gold

Stripes

Polka Dots

Plaid

Psychedelic

Other Crazy Patterns

"Now let's invent some new buttons by thinking of different colors, shapes, sizes, and some different kinds of material to make them from."

"Sounds too easy," laughed Dudley. "As far as colors go, there's..."

"I know!" interrupted Max. "There's raspberry, tangerine, mustard, dill pickle, blueberry, grape, vanilla, blackberry, chocolate, and mushroom...and maybe fish and honey colors." Max was thinking with his stomach.

"We could also have patterns of colors," added Mr. I. "Any button millionaire would be interested in stripes, polka dots, plaid, psychedelic and other crazy and colorful designs--but so much for colors. Now what about button shapes?"

"Round, of course," began Dudley, "and I suppose we could have buttons that are square, or triangle-shaped, or oval, like an egg or maybe even shaped like a STOP sign."

"Well, that's FIVE, Dudley," said Mr. I, pretending to be surprised and a little disappointed. "I'll give you a little hint: Sometimes ideas can be found just by looking around you--and don't be afraid of suggesting some wild and far-fetched ideas."

1. Don't be afraid to think of wild ideas. Often, wild ideas turn into good ones. (The Wright brothers' airplane was thought to be the craziest idea ever!)

2. Sometimes, new ideas can be found just by looking around you.

Mr. I continued, "Now what new button shapes can you find just by looking around this room?"

"Can we look out the window?" asked Max, where he spied Mr. Sutton's sheep in a nearby field and began snickering about the idea of a Sutton Mutton Button.

Button Shapes

round

square

triangle-shaped

oval

stop-sign shaped

box-shaped

light-bulb shaped

leaf-shaped

golf tee

round with spokes

sheep-shaped

other wild shapes

"Of course you can," replied Mr. I, not seeing what was so funny.

As Dudley glanced around the room and out of the window, he soon found Mr. I was quite right about finding new ideas just by looking around. "How about a box-shaped button, or a light-bulb-shaped button, or a leaf-shaped button, or a button made from a golf tee, or a round button with spokes on it like a bike wheel. Or maybe," added Dudley, finally noticing

Sutton's sheep, "for children you could have buttons shaped like animals, like those sheep!"

"You mean a mutton button?" grinned Mr. I.

"I guess so," laughed Dudley.

"Well, SNORT!" snorted Max, indignantly. "If there's anything I can't stand it's a sheep joke stealer!"

"I think we should get on with inventing buttons," said Mr. I, quite puzzled over Max's strange remarks. "Now we need to think of some new materials to make buttons out of."

"Most buttons are made of plastic," began Dudley, "but they can also be made of wood, copper or brass, and my distant relative has leather buttons on his secret spy rain coat."

Just then, Dudley noticed that three of the buttons on his secret spy coat were missing, and that a certain ever-hungry bear was chewing on Something with great difficulty! "And," he added, glaring at Max, "I've seen buttons made of deer's antlers and maybe even bear's teeth!"

"No wonder the world is filled with toothless bears," munched Max, ignoring the threat.

"So far, so good, Dudley." said Mr. I, looking around his shop. "I'll just add a few more. What about buttons made of glass, or rubber, or tin, or fiberglass, or maybe even cardboard or stiffened cloth?"

"Or even rhinocerous horn," added Dudley, remembering a trip to the zoo in his youth.

Button Materials

plastic

wood

copper

brass

leather

antlers

bear teeth

glass

rubber

tin

fiberglass

cardboard

stiffened cloth

rhinocerous horn

other stuff

"Did you happen to notice," screamed Mr. I, stepping on a sharp piece of chewed button, "that our ideas became more and more unusual as we thought of more and more ideas? For example, in thinking of shapes for buttons, you first thought

of round, which is rather common. But by the time you finished, we had leaf-shaped and even sheep-shaped buttons. With materials, we naturally started with plastic buttons, but later we came up with some pretty unusual ideas--like stiffened cloth or rhinocerous horn. See what I mean?

The more ideas you think of, the more unusual they get.
So if you want unusual ideas, it helps to think of lots of ideas.

"Well," continued Mr. I, gripping his wounded toe, "let's wrap up the button problem by thinking of a few sizes, which is our last button quality. Max, how many different sizes can you think of?"

"Oh, Hmmm...gosh...Uh!" stuttered Max. "What about, um ... small, medium, and large? And maybe teeny-weeny and family size? Or even some in between. I mean, that is, if you can find button holes to fit them all."

Button Sizes

small
medium
large
teeny weeny
family size
sizes in between

"Very good!" smiled Mr. I. He knew that even Max could think of different sizes. "Now, Mr. Button Millionaire, you've got enough button ideas to keep you playing financial button-button for some time."

"We certainly did think of a lot of new ideas," said Dudley. "And it was much easier than I thought it would be. We just took one part, or quality, at a time, and thought of ways to change that part. When we were finished, we had dozens of possible new ideas."

Review

Before Mr. I, Dudley, and Max tackle the motorcycle-improvement problem, let's look again at what we have learned so far:

1. There is very little in the world which could not be improved with new and different ideas.

2. One of the best ways to think of new ideas for changing or improving something is the PART-CHANGING method. Just think of one part (or quality) at a time, and think of ways to change that part.

3. Don't be afraid to think of wild ideas because they often turn into good ones.

4. Sometimes, new ideas can be found just by looking around you.

5. The more ideas you think of, the more unusual they get. So if you want unusual ideas, it helps to think of lots of ideas. (There are only so many common, run-of-the-mill ideas. After a while, they have to start sounding a little weird!)

Exercises

Let's do a couple of simple problems using the PART-CHANGING method--just to make sure you're still with us.

1. Three parts (or qualities) of common classroom chalk are color, shape, and size. (Surprise! These are the same qualities Dudley found with buttons.) Invent some new kinds of chalk by listing 15 different colors (and don't forget striped chalk, like the striped toothpaste), 10 different shapes, and 5 sizes. Try to think of different ideas, and don't worry about whether or not they are any good.

COLORS	SHAPES	SIZES
1. _____	1. _____	1. _____
2. _____	2. _____	2. _____
3. _____	3. _____	3. _____
4. _____	4. _____	4. _____
5. _____	5. _____	5. _____
6. _____	6. _____	
7. _____	7. _____	
8. _____	9. _____	
9. _____	10. _____	
10. _____		
11. _____		
12. _____		
13. _____		
14. _____		
15. _____		

2. Some breakfast cereals are shaped "like tiny little letter O's." Let's invent some new breakfast cereals by thinking of some different shapes, flavors, colors, and sizes. These are four qualities of breakfast cereals, right? Be imaginative.

SHAPES	FLAVORS	COLORS	SIZES

3. Suppose you were a toy manufacturer with a warehouse full of unsold skateboards. The problem is to change one (or more) parts or qualities of the skateboards to make them really different so they'll once again sell like crazy and make you another million $$$. List some parts (or qualities) of the skateboards, and then think of ideas for changing these parts. Be creative.

Part or quality #1 _____ #2 _____ #3 _____ #4 _____

Changes:				
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

4. What are some <u>qualities</u> of

(a) a doorbell? _____

(b) a bicycle basket? _____

(c) a band-aid? _____

(d) a piece of sandpaper? _____

(e) a paperweight? _____

(f) a rose? _____

(g) an umbrella? _____

(h) a potholder? _____

(i) a Cocker Spaniel? _____

CHAPTER II: A Bigger and Better Motorcycle?

"And now that you know how the PART-CHANGING method works," said Mr. I, "let's think of ways to invent a bigger and better motorcycle."

"I thought your PART-CHANGING method just worked for building better buttons," injected Max.

"This method can help find ideas for many kinds of problems," laughed Mr. I. "For example, if I need ideas for painting a picture, I usually think of the important parts or qualities of a painting--such as the subject of the picture, the colors, and the kinds of paints or pencils. Then I think of how to change each of these parts. When I want ideas for writing a short story, I think of lots of possible ideas for each important part of the story, especially the characters, the setting, and the plot--but let's work on the motorcycle problem for now."

The PART-CHANGING method for thinking of new ideas can be used with many different kinds of problems.

Max was more interested in the motorcycle problem than the button problem. He didn't care much for buttons, having no need for them himself. Also, they weren't particularly tasty--nor even any fun to chew up! However, Max did have an uncle named Hershel who was a professional motorcycle-riding bear in a 3-ring circus. Since Uncle Hershel just rode the motorcycle around and around in one of the circus rings, that particular ring was called Hershel's Circus Cycle Circle.

"How many different parts of a motorcycle can you think of, Dudley?" asked Mr. I, sitting thoughtfully on his pipe. "To keep our motorcycle problem simple, let's not include the nuts and bolts for now; maybe we can invent some new kinds of nuts and bolts, or rather, some 'new ways to hold things together,' at a later time, fair enough? Now back to business."

While Mr. I was talking, Dudley had been busily thinking;

of different parts of a motorcycle which might be improved using Mr. I's PART-CHANGING method.

"Well," he began, "the biggest main parts are the frame, the motor, the wheels, the seat, and the handlebars."

"For practice," cut in Mr. I, "let's just use three of the parts you've listed, Dud--the frame, motor, and wheels. We can pretend we're motorcycle engineers, and we want to somehow build a bigger and better motorcycle. Something revolutionary!

"Say!" continued Mr. I. "I just had an idea, Dudley. Let's think of 'perfect' or 'ideal' changes for our motorcycle. Even if some of the 'perfect' ideas sound ridiculous, they can lead to good ideas that aren't so ridiculous.

Thinking of perfect (or ideal) problem solutions, even if they sound ridiculous, can lead to good ideas.

"So let's start with the frame," said Mr. I, standing up and suddenly noticing the clever new division in his pipe. "They're usually made of strong pipe that's welded together. What are some perfect or ideal ways to change this part?"

"Well, let's see ..." answered Dudley, thoughtfully. "A perfect motorcycle frame would be perfectly rust-proof, perfectly strong, and wouldn't weigh anything because it would be perfectly light."

"Sounds perfectly impossible," muttered Max, making experimental licks at a jar of glue that reminded him of a jar of honey he once knew.

But Dudley continued, "What about a frame made of some extra-strong nylon, if there is such a thing? This would be rust-proof, awfully strong, and much lighter than heavy metal pipe frames ... or else some kind of aluminum or strong aluminum alloy; this would be rust-proof, strong, and light, too."

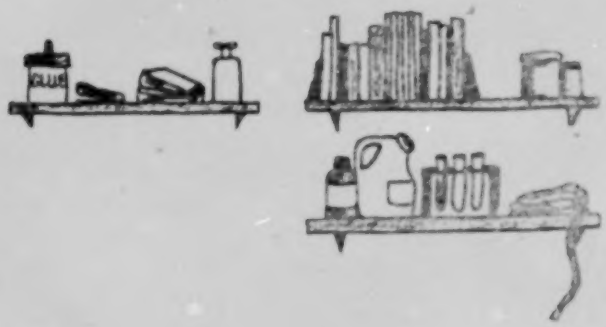
"What's a 'loy'?" asked Max, pretending to be confused. "Is it

something like a 'lirl'?" At this, he toppled over backwards in hysterics at his own cleverness.

"An alloy," chuckled Mr. I, patching up his pipe with the band-aid he forgot to put on his toe, "is a mixture. An aluminum alloy would be a mixture of aluminum with other metals, to make it extra strong. Now what about a few more ideas, Dud? Use your imagination. Look for new combinations, and don't forget to look around you for ideas."

1. Use your imagination.
2. Look for new combinations of things. (Most new ideas are combinations of old ideas.)
3. Look around you for ideas.

"Okay," said Dudley, propping himself up on Max in order to really get a good look around Mr. I's shop for ideas. "What about a frame made of strong stiff rubber with a stainless steel rod in the middle for extra strength? Or maybe we could find an entirely new combination of materials.



like an alloy of plastic and steel? Or else aluminum covered with fiberglass? Or some nylon and steel combination?"

"Find, Dud, just fine! You're suggesting some pretty wild ideas, but nothing is impossible! It's unusual ideas like these that develop into important good ideas. You also turned some of your first ideas into new combinations of ideas. That's very good.

"Now we need to find changes for another part of our motorcycle--the motor. How could we change the motor, Dudley? Remember, it helps to look for 'perfect' ideas."

"An ideal motor," began Dudley very quickly, since he had been thinking of this part of the problem for several minutes, "would be very light and very dependable and very cheap, or even free, to run." Then, with a little more thought, he continued, "We could make a motor lighter by making it smaller or else by making some parts out of lighter stuff, like aluminum or even some kind of plastic or glass."

"Well," injected Mr. I, "your ideas are all right so far, but how about something more unusual? Be wild."

"I've got an idea!" yelled Dudley, leaping up and overturning the glue jar onto an unprepared Pillow. "What about a different kind of engine altogether! A diesel-powered motorcycle would

be cheap to run and very dependable--especially the new turbine-type diesel engine!"

Dudley continued to think of "perfect" motors. "I think a perfect engine for our motorcycle shouldn't ever run out of gas. Maybe it could even refuel itself. Let's see, what sort of things refuel themselves?

"I know! You already have a battery-powered electric motor on your motorcycle. Maybe we could recharge the batteries with some kind of sun energy collector--like they do on some space satellites!" Then, standing and placing his hand over his heart at the thought of his hero, Captain Future, dauntless conqueror of space, all-knowing leader of the solar system, controller of untold sources of power and energy, and all-around swell person, Dudley added, "Or maybe some kind of gadget could catch radio waves or sound waves out of the air and turn them into electric power for the motor. Or maybe a new-fashioned steam engine would be good. If we had a Magical Heat Widget, to boil the water, a steam-powered motor would be almost free to run ... for a long time, too!"

Max had been thinking about Dudley's motor ideas, as he unstuck himself from the floor, and finally concluded, "If I know anything about anything, Dudley, you're a little nutty. Motorcycles have motors that go 'Rap-Rap' and that's that."

"And if I know anything about ideas, Max," answered Mr. I, "you can't find good new ideas unless you allow yourself to be a little nutty. And another thing: if you criticize wild ideas of other people--they'll stop thinking of them!"

1. Again, good ideas may come from nutty ones--so let yourself be a little nutty.

2. Don't criticize wild ideas of other people. They might turn into good ideas or help you to think of good ideas.

"I think we have enough motor ideas, Dud," continued Mr. I. "How about some new ideas for wheels. Don't worry about being nutty; just think of what ideal wheels might be like."

"Well ..." thought Dudley. "Ideal wheels wouldn't go flat! Now wheels wouldn't go flat if they didn't have air in them. What about filling wheels with something like foam rubber or stiff wire springs--or both--there wouldn't even be any air in them? Or maybe," he added, remembering the firm dependability of the wheels on his favorite skateboard, "wheels could be made differently to begin with. Perhaps if the tires were made stiff enough, they wouldn't

go flat anyway. Maybe some kind of metal or plastic or nylon would make good tires, tires that wouldn't need air."

"Interesting!" thought Mr. I, "but what about having no tires at all? No flats either. You've heard of the new boats and trains which ride on air cushions? Maybe something similar could replace tires on a motorcycle."

"Hey, that sounds like a great idea!" agreed Dudley.

"And it sure is nutty enough!" added Max, trying to be helpful.

"Thank you, Max," smiled Mr. I, who was sure Max really meant to be helpful. "I believe we've stretched our imaginations enough for one day, and I think you see how the PART-CHANGING method works: If you want to improve something, just list the main parts and then think of different ways to change each part."

> If you want to improve something, just list the main parts and then think of different ways to change each part.

And at this, with pleasant good-byes, Dudley and his side man split.

Review

1. If you want to change something, just list the main parts and then think of different ways to change each part.

2. The PART-CHANGING method for thinking of new ideas can be used with many different kinds of problems.

3. Thinking of perfect (or ideal) problem solutions, even if they sound ridiculous, can lead to good ideas.

4. Use your imagination.

5. Look for new combinations of things. (Most new ideas are combinations of old ideas.)

6. Look around you for ideas.

7. Good ideas may (and usually do) come from nutty ones.

8. Don't criticize wild ideas of other people. They might turn into good ideas or else help you to think of good ideas.

Practice

1. a. Suppose you were asked to invent the PERFECT lunchbox and you were given anything in the world you wanted to work with. Describe how your IDEAL lunchbox would be different from (and better than) all the others. (You may write your ideas in the blanks at the left, or else draw a picture of your PERFECT lunchbox in the space at the right. Or both, if you like.)

_____

_____

_____

_____

_____

_____

b. We also can find ideas for inventing new lunchboxes by changing different qualities. Look around your room for ideas for changing the material the lunchbox is made of, and for changing the shape of the lunchbox.

Materials	Shapes
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

CHAPTER III: Maybelle Learns the CHECKERBOARD Method for Finding New Ideas

One day, Dudley and Max brought a visitor to Mr. I's workshop. They found Mr. I just finishing his lunch, a carrot sandwich with a chicken-soup sundae for dessert.

"Mr. I," began Dudley, "I'd like you to meet my cousin Maybelle. She's visiting us this summer and my mother said I had to bring her along." Then, turning to Maybelle, who still stood back by the door since she was a little surprised by Mr. I's strange eating habits, Dudley announced, "Maybelle, this is Mr. I, my clever inventor friend who invents clever inventions and knows how to find lots of good ideas."

"Although some of them aren't very good," added Max, who vaguely remembered a motorcycle with cushions for wheels.

"Now Max," scolded Dudley, "when we're looking for new ideas, sometimes the silliest and wildest ideas can help us find good ideas. Besides, you're not supposed to say impolite things to Mr. I."

"Can I say them to you?" asked Max, hopefully.

"Not to anyone," replied Dudley. Max could tell from the sound of Dudley's voice that he meant, "And that's that!"

Mr. I began to laugh. "Did you two come over here to teach each other good manners, or do you have a more important problem?"

By this time, Maybelle could see that Mr. I was a rather pleasant fellow, so she joined in the giggling at Max's antics.

"You see ...," she began.

But Dudley decided he could explain things better. "You see," he interrupted, "Maybelle needs some new ideas for themes and short stories for her English class."

"I get tired or writing about Hambone, my pet iguana,"

added Maybelle, thinking of the 37 themes, poems, and short stories she'd already written. "There's only so much you can say about your pet iguana, and then you've said it all!"

"I explained to Maybelle," continued Dudley, starting to sit in a large comfortable chair--which Maybelle was already sitting in--"that you knew lots of ways to find new ideas and invent new things. Last time, you did say something about finding ideas for short stories. Will your idea-finding methods work for finding new ideas for stories?"

"Actually, Dudley," replied Mr. I, taking a super-gigantic puff on his pipe and giving his I-am-about-to-say-something-important look, "any of our methods for finding new ideas can help you with lots of different problems. Whenever you need new ideas, whether it's for finding better ways to do things, inventing a new gadget, writing a story, painting a picture, or even for choosing a birthday present for Max, some of these ways to find ideas can help.

"Now I did have one new method I wanted to show you. I call it the CHECKERBOARD method for finding new ideas, and we can use Maybelle's problem to show how it works."

Maybelle was still a little bothered by Mr. I's peculiar lunch. After all, it isn't EVERY day that someone makes a sandwich out of carrots, or makes an ice cream sundae with chicken soup. So she asked, "Before you begin, I wonder if I could ask you about your weird --er, unusual lunch. After all, it isn't EVERY day that someone makes a sandwich out of carrots, or makes an ice cream sundae with chicken soup!"

"Sure," he laughed. "Sometimes I make up a different kind of lunch just to remind myself that I don't have to do everything the way everyone else does. There are always other ways of doing things, and there are always better ways of doing things. Besides, it makes life more interesting to think of different and better ways to do things."

There are always other and better ways of doing things.

"Well," grumbled Max, a little sick-to-his-stomach, "I don't think putting soup on ice cream for lunch is doing anything any better at all! BUT," he added, getting a little starry-eyed, "if you put honey on razzleberries, now THERE would be a truly wonderful lunch!"

As soon as Dudley, Maybelle, and Mr. I stopped laughing at Max, they decided it was time to tackle a real problem.

"So we want to find some new ideas for writing stories for your English class," observed Mr. I.

"And I'd like some ideas for themes or poems or essays, too," added Maybelle.

"What would you say if I told you that with our CHECKERBOARD method we can probably think up several hundred possible new story ideas in just about 15 minutes. Would you believe it?"

"I wouldn't!" growled Max, absentmindedly munching on the pile of leftover carrot greens. Chewing carrot greens seemed like a lot

less work than thinking of new ideas.

"Just wait and see, Max," suggested Dudley, who'd seen Mr. I's idea-finding methods work very well in the past.

"Tell me, Maybelle," said Mr. I, "what sort of general things go into any kind of story? I mean, what are the main parts of a story?"

"Well," thought Maybelle, "there are the bad guys, the good guys, the things that happen to them, and where they happen. Is this what you mean?"

"That's exactly what I mean," answered Mr. I. "Characters and settings. Now, let's make a diagram on my chalkboard that looks like a big checkerboard. Along the up-down side of the checkerboard, let's first list as many different kinds of story characters as we can. Okay?"

"Well, there are people and their pets," began Maybelle, thinking first of the characters she usually wrote about.

"And there's space men," added Dudley, "and pirates, cowboys, secret agents, creepy monsters like the Green Hulk, ..."

"And I guess there's kings, princesses, knights, fairy godmothers and wicked stepsisters," interrupted Maybelle, beginning to think of things better than she thought she could.

"And there's Yogi Bear, Booboo, Winnie-the-Pooh and Lumpjaw," suggested Max, pausing between mouthfuls of carrot greens to add his own heroes.

"Let's be original," said Mr. I. "Think of unusual characters that you haven't seen on television."

"Hmmm," thought Dudley and Maybelle. Dudley began, "How about mythical characters--like goblins, trolls, and elves."

"Or some mythical animals," added Maybelle, "such as dragons, talking foxes, unicorns, flying horses or giant earthworms."

Maybelle got some of her ideas from Dudley's "mythical character" suggestion.

You usually can find new ideas by adding to the ideas of others.

"Or junkies," sang in Max, thinking of his late Uncle Rhubarb whose addiction to marshmallow Easter Bunnies led him to misery and ruin.

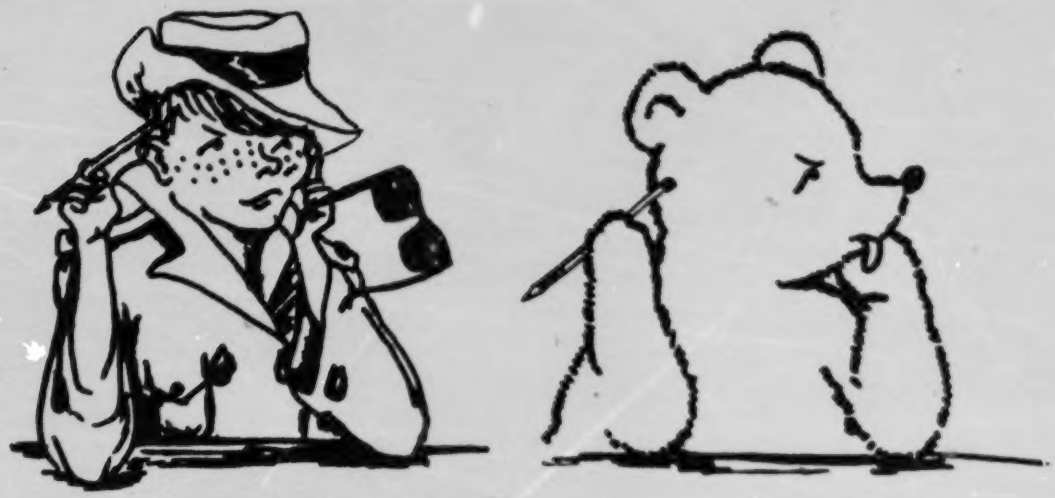
"I think we have enough characters to work with," said Mr. I. "Now let's think of some settings for our stories--unusual settings. You can get some ideas by looking at our list of characters."

"Say, that's right," said Dudley, quickly noticing that the characters DID suggest some settings. "There's home, the zoo, the jungle, outer space, pirate ships, the wild wild west, and maybe even some mysterious foreign cities."

Maybelle added, "And don't forget castles and enchanted forests, or magic lands where the Little People live, or maybe underground cities in the center of the earth--where giant earthworms are enemies."

"Pretty good," said Mr. I.. "Now for a few more ideas, try combining some of the settings that you've already thought of."

> For a few more ideas, try combining some of the ideas you've already thought of.



"Hmmm," thought Dudley, looking over their list of settings. "How about a magic castle and forest deep in the center of the earth? Or else floating in space in a bubble. Or a zoo in outer space ... maybe people would be in the zoo and animals would throw us peanuts!"

"It's about time," thought Max, noticing that the last mouthful of carrot greens had a very strange flavor!

Then Maybelle put together some new ideas (which amazed her more than anyone else). "Or maybe the setting could be just a normal home or school--except on the moon or another planet, where space monsters or moon-men go to school, play moon-ball, or something."

"Fine, laughed Mr. I, glancing around briefly for his pipe tobacco. "You didn't know you could be so creative, did you!" He continued, "I think you can see what I'm going to do now. We have a list of characters on the up-down side of our checkerboard and a list of settings along the top. In each square of the checkerboard will be the combination of one type of character with one type of setting.

SETTINGS

CHARACTERS

	Home	Outer space	Zoo	Jungle	Pirate ships	Wild, wild west	Mysterious foreign city	Castles and enchanted forests	Magic lands	Underground city	Underground magic castle and forest	Magic castle and forest in space	Zoo in outer space	Underground home - school on another planet
People and their pets pets														
Space men (little, green)														
Pirates														
Cowboys														
Secret agents														
Creepy monsters														
Kings, princesses, and knights														
Fairy-godmothers, wicked stepsisters														
Yogi bear, Booboo, Winnie-the-Pooh, and Lumpjaw														
Goblins, trolls, elves														
Dragons														
Talking foxes														
Unicorns or flying horses														
Giant earthworms														
Junkies														

For lots of new ideas, make up a CHECKERBOARD with specific examples of one thing along one edge, and specific examples of another thing along the other edge. Some of the combinations of ideas found in the squares might be pretty silly, but many will be pretty good!

"Now many of these combinations will be just too silly to make into a story, Maybelle, but a lot of the squares should give you some good ideas. Since we have 14 types of characters to combine with 14 types of settings, we have 196 ideas to choose from! I'm sure we can find some interesting and unusual story possibilities. Incidentally, has anyone seen my pipe tobacco?"

"I haven't seen your pipe tobacco," answered Maybelle, "but, WOWEE, I sure see lots of new story ideas! For example," she began, glancing briefly at a faintly greenish Max, "I could write about the adventures of little green space men in our zoo--as they try to communicate with the 'earth creatures' in the cages. Or another

really new combination would be the little green moon men investigating a magic castle and forest in the center of our earth. Or what about the Green Hulk on a pirate ship or in outer space? Or a story about Yogi Bear on a pirate ship or in a mysterious foreign city, or in a magic castle and forest deep in the center of the earth? Or the magic castle could be floating in space.

"You're right, Mr. I, there are dozens of great new ideas. The next time I need ideas for an English theme, I'll make up a checkerboard like this one."

"But some of the ideas are pretty stupid!" said Max, trying to act like nothing was the matter. "What kind of dum-dum would write, or even read, a story about pirates at home or in school, or about secret agents in a Happy Little-People town?"

"Maxwell," replied Mr. I, slowly and patiently, "how many times do I have to tell you: Don't criticize! We have to be open-minded about wild ideas because some may not be so bad in the long run. Besides, with the CHECKERBOARD method, there are usually so many ideas to choose from, it doesn't matter if only a few are really good.

1. Don't criticize "crazy" ideas. Would you want someone criticizing your "crazy" ideas?

2. With the CHECKERBOARD method, just a few of the ideas will be really good--but that doesn't matter when you have so many to choose from.

And Remember

1. For lots of new ideas, make up a CHECKERBOARD with specific examples of one thing along one edge, and specific examples of another thing along the other edge. The combinations of ideas found in the squares could be pretty good.

2. There are always other and better ways of doing things.

3. You can usually find new ideas by adding on to the ideas of others.

4. For just a few more ideas, try combining some of the ideas you already have.

5. Don't criticize "crazy" ideas.

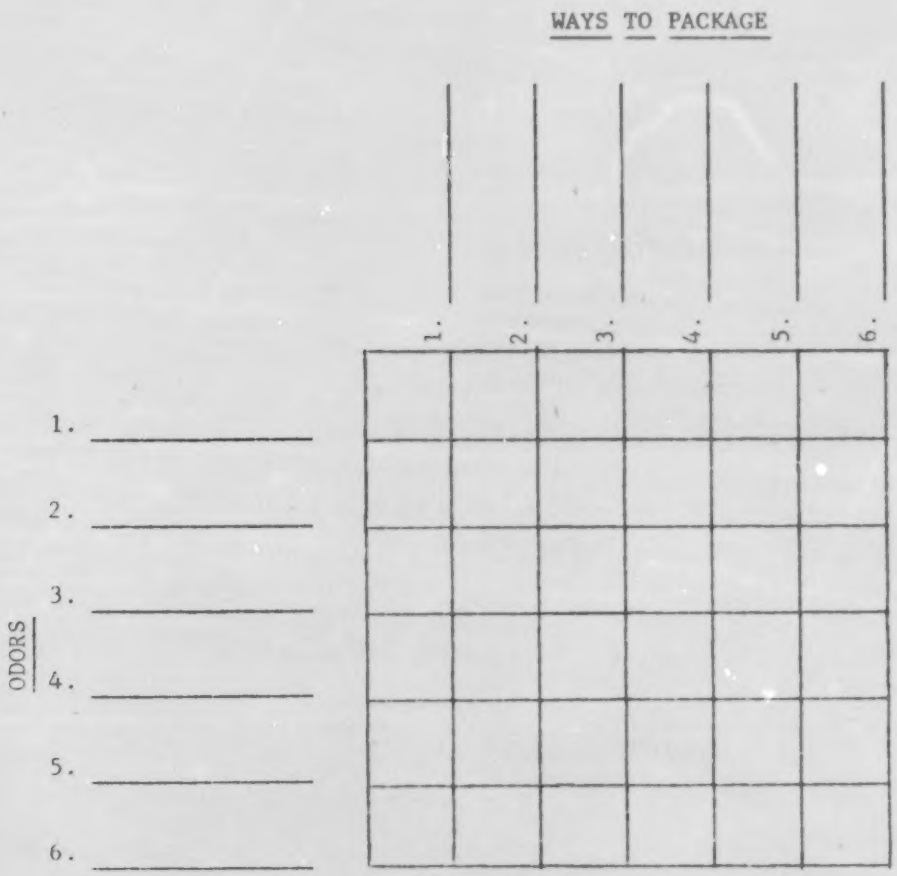
6. With the CHECKERBOARD method, just a few of the ideas will be really good. (But it doesn't matter when you have so many to choose from!)

Work

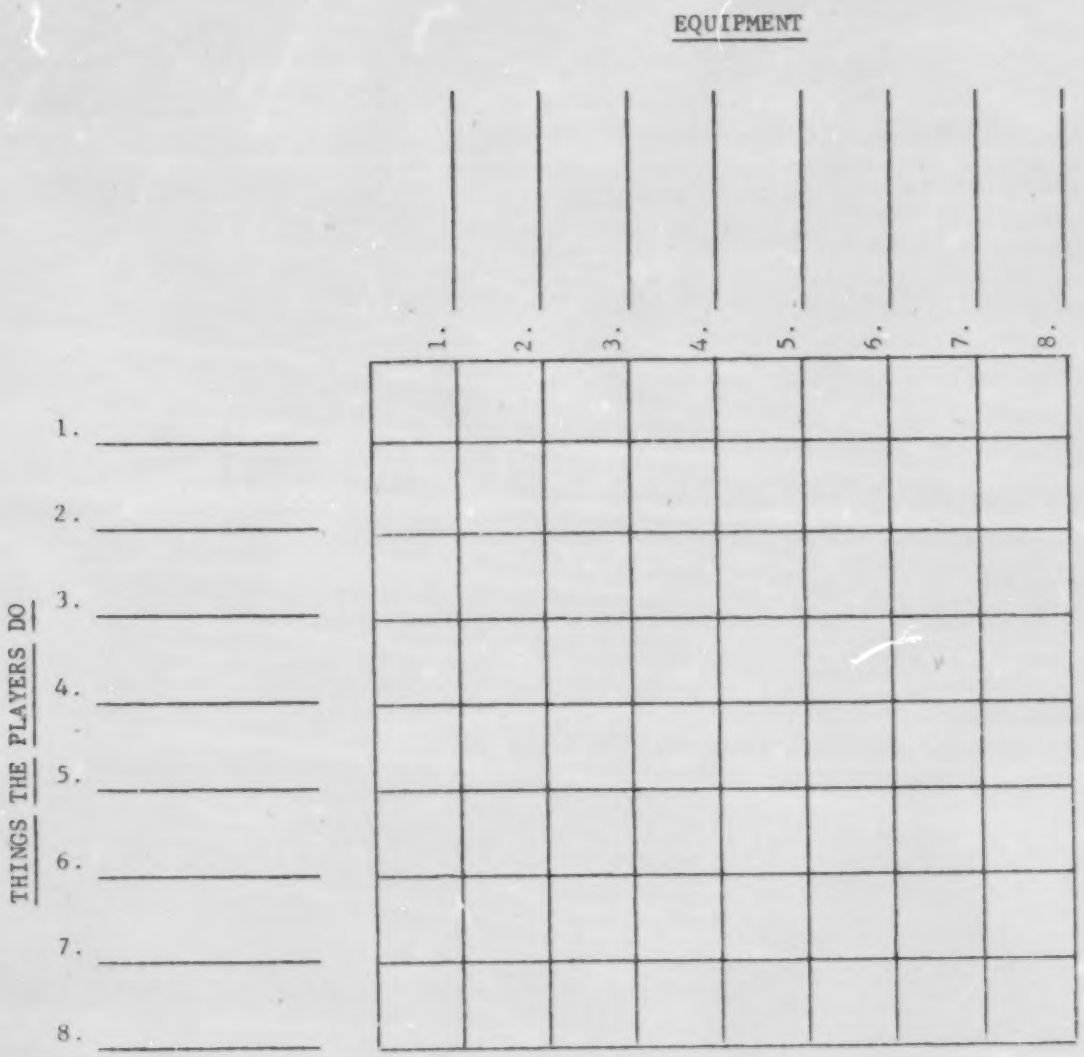
1. Look again at the checkerboard on p. 34. Pick out some combinations of characters and settings which might be good for a new kiddie-cartoon series. (These combinations will be in the squares, right?)

Characters		Setting
_____	and	_____
_____	and	_____
_____	and	_____
_____	and	_____
_____	and	_____
_____	and	_____

2. You are a world-famous perfume-maker and would like to put a perfume on the market that would be really new and appeal to lots of people (and make you lots of $$$). Make a CHECKERBOARD with different types of scents or odors on one side and different ways to package (or bottle) it along the top (in soap, after-shave lotion, cologne, etc.).



3. Your gym teacher has decided to give you a final exam in which you have to make up a new sport or game. Use a CHECKERBOARD to help you do this by putting materials or equipment along the top and things the players do (running, batting, kicking, etc.) down one side.



CHAPTER IV: Would You Believe a Pedal-Powered Flying Saucer?

"Before you go, Maybelle," said Mr. I, "let's do one more problem using the CHECKERBOARD method for finding ideas. Let's invent some new kinds of transportation devices--like cars, bikes, and trucks. I'll bet we can invent some that have never been thought of before.

"Dudley," continued Mr. I, puffing a series of fascinating smoke-rings, "what would be two important things to consider for a new kind of vehicle?"

"Well," thought Dudley, "I suppose the type of body would be one thing we should think about."

"And you'd also need to decide how to make your vehicle go," added Maybelle, watching Mr. I's smoke-rings with great interest. "You'd need a motor or pedals or something."

"Great!" smiled Mr. I. "Those were exactly the two main things I had in mind. Now we need to think

of specific ideas for the body of the vehicle, and specific ideas for whatever makes it go."

"And," added Dudley, "we can put one set of ideas on one edge of the checkerboard, and the other set of ideas on the other edge, and then we'll look at the combinations of ideas in each square, right?"

"Why don't we just play checkers on the checkerboard," yawned Max, sleepily, "like reg'lar folks do? Watch my imitation of a bear rug playing checkers." And at that, he sprawled out on the floor, one leg pointed in every direction, and promptly fell asleep!

Mr. I, Maybelle, and Dudley could hardly choke down their laughter.

"We'll have to whisper," said Maybelle, "so we won't wake up our bear rug."

"Okay," whispered Mr. I, getting back to business, whispers or not. "let's think of some types of bodies for our vehicle. I'll give you two hints for finding ideas for vehicle bodies: First, think of different types of vehicle bodies which we already find in the world; second, think of types of vehicle bodies which we might find sometime in the future."

1. Sometimes, you can get ideas by recalling other things in the world which do the same things you need done.

2. You also might find some new ideas by imagining how these same things might be done a hundred or a thousand years from now.

"Well," thought Dudley, thinking of different kinds of vehicle bodies, "we have bicycles, cars, busses, trucks, and boats."

"All right," nodded Mr. I, laying his pipe on the table and writing the ideas on his chalkboard. "What other kinds of vehicle bodies do we find in the world?"

Moving towards the table, Maybelle added to the list, "We have trains and planes, and in grocery stores there are carts for

carrying groceries around ... and maybe helicopters and flying saucers--is it okay to say flying saucers?"

"Of course it is," said Mr. I. "Don't be afraid to suggest unusual ideas. We can always bring wild ideas down to earth later--but not unless we have them to begin with!"

Don't be afraid to think of wild ideas. They can be changed, or "brought down to earth," later.

"Bring flying saucers down to earth!" snored Max. "Very funny! Very VERY funny indeed! Harrumph!"

"Sorry about that, Max," chuckled Mr. I, shaking his head at the bear rug. "But now let's think of a few other kinds of vehicle bodies, some that we might find in the future."

"Well, we've already listed flying saucers," said Dudley, thinking of future kinds of vehicle bodies. "I once saw a picture of a future underground vehicle shaped like an on-its-side tin can. It was sucked through a tunnel by a vacuum."

"What bubblehead thought that one up?" wheezed Max, still half asleep.

"And there's another idea," cried Maybelle, also thinking of future vehicles. "What about a flying bubble-like vehicle--we could call it a Travel Bubble." Then she sneaked a great big puff on Mr. I's pipe.

"A bubble might make a good boat body, too," added Dudley, thoughtfully. "Wouldn't sink."

"Not bad," chuckled Mr. I, who was pleased to see Maybelle and Dudley using their imaginations and finding ideas so quickly. Suddenly he noticed the absence of his pipe--and the presence of a greenish, choking Maybelle. He quickly recovered his pipe, raised a threatening eyebrow at Maybelle, and continued, "Now how else might people travel in the future?"

"Gee," said Dudley, wishing he'd thought of the smoke-ring idea first, "that's a tough question!"

"Yes, I know it is," agreed Mr. I. "So here's a hint--think of what's wrong with today's cars and other vehicles. Chances are, these problems will be solved in the future."

For new ideas on how to make something better, think of what's wrong with the old something.

"One problem," said a-slightly-weak-and-thoroughly-embarrassed Maybelle, "is that our cars are too big and awkward. I'll bet future cars will be much smaller ... and it would help parking problems if our little future cars could be made smaller yet--maybe even collapsible!"

"That's not new, Dud," growled Max, who was now quite recovered from his bear rug metamorphosis. "We already have collapsible cars. Haven't you ever seen a good accident?" Then Max, noticing a foot directly in front of his nose, began tasting the toe of Dudley's tennis shoe.

"That's not quite what he meant," corrected Mr. I. "But so much for vehicle bodies. Now we need some kinds of motors, or power sources for the other side of our checkerboard.

Not yet noticing what Max was up to, Dudley began, "We've already mentioned gas motors, pedals, and vacuum tubes. Even today we have electric motors, and ... Say, you know what? This sounds just like we're working on the motorcycle problem. I bet if we look at our list of motors for the motorcycle, we might find some that could be used for this problem!"

Sometimes, when you need ideas for something, you can find a LIST of ideas already made. We'll see this again in the next chapter.

"You're right, Dudley," answered Mr. I, searching through the papers on his desk. "And I think I have that list right here. AHA!" he said, pouncing on a scrap of paper carefully hidden under the blotter. "We've got a diesel motor, steam engines, a new gas-turbine motor, and we thought of electric motors with batteries which are rechargeable by either sun energy or by catching radio or sound waves in the air.

"And that's our list of motorcycle motors. Now let's think of a few more ideas for making the vehicle go. Remember, you can get extra hints by looking at our list of vehicle bodies and by thinking of other 'ways to make things go' that are found in the world."

Again, you can find ideas by recalling other things in the world that do the same things you need done.

At this, Maybelle carefully checked the list of vehicle bodies to see if any of their motors were overlooked. "I see one," said Maybelle. "Oh, never mind," she added, "it's not a very good idea."

"That's all right," reminded Mr. I. "Let's have it anyway; you never know when even a rotten idea can lead to good ideas."

Don't be afraid of suggesting bad ideas. They could lead to some good ideas.

"Well, all right," she replied, encouraged. "We have boats on our list of bodies. Boats can be pushed by the wind, if they have sails."

"And flying saucers ought to be pushed by atomic power or some kind of rocket engine, I think," said Dudley, trying to walk towards the chalkboard with Max firmly attached to a thoroughly delicious sneaker.

"And how about ocean tides and currents?" asked Dudley, tugging to regain control of his shoe. "They sort of push things. So does gravity. Would these help?"

"I really don't know, Dudley, but we'll add them to our list anyway. We wouldn't want any new ideas that might be useful to get away, right?"

"Right!" agreed Dudley, finally maneuvering Max into giving up the remains of his

sneaker by bonking him on the nose with the other one. He was still pretty sure that tides, currents, and gravity were useless ideas, but he also knew that useless-sounding ideas can lead to good ideas.

"I think we can stop now," said Mr. I. "We have 14 types of vehicle bodies and 13 kinds of motors or 'ways to make it go'. Let's see, that's 182 possible ideas for new vehicles. Not bad at all.

"So now that we're through thinking of new ideas, let's see if there really are any possibilities for new types of vehicles. Now you can be critical--pick out the good ideas and forget about the bad ones."

TYPE OF BODY

POWER

Gas Motor	Bicylces	Cars	Buses	Trucks	Boats	Trains	Airplanes	Grocery carts	Helicopters	Flying Saucer	Tin-Can Shaped Vehicle	Bubble Shaped	Very Small Auto	Small Collapsible Auto	
Pedals															
Underground Vacuum Tube															
Diesel															
Gas-Turbine															
Electric - Sun Power															
Electric - Catch Radio Waves															
Steam															
Sails															
Atomic															
Propellers															
Ocean Tides and Currents															
Gravity															

Evaluate ideas only after you're through thinking of them.

Why? Simply because evaluating ideas interferes with thinking of new ideas.

Dudley, Maybelle, and Mr. I began examining each square of the checkerboard to see if there were some good ideas for new kinds of vehicles, ideas which had never been thought of before.

Dudley began, "Cars or bikes with atomic engines, rocket engines, or sun-powered motors sure would be new! Or cars or trucks pushed by propellers!"

"Maybelle began giggling, "I can just see a pedal-powered bus--twenty passengers, each with a pair of pedals!"

"It does sound funny," agreed Mr. I. However, with a little thought he added, "But if gasoline and motors became too expensive, or if people wanted some pedalling exercise, maybe a small pedal-powered 'bus' might actually be a practical idea."

"I found a few more," said Dudley, inspecting the squares of the checkerboard. "A boat powered somehow by ocean currents would be a cheap way to travel, and an atomic powered train would eliminate fuel stops on long high-speed trips."

Then Max picked out the silliest square of all. "Okay, geniuses," he began, "a pedal-powered flying saucer may sound groovy to you, but it'll never get off the ground!"

"I guess you're right, Max," agreed Mr. I. "But an electric-powered grocery cart might be a good idea--especially if there were a seat on it--like ride 'em type lawnmowers.

"There are dozens of other interesting ideas in this checker-board," continued Mr. I. "Some probably would be practical today, like the atomic-powered train. Some may be possible in the future, like a tiny propeller-driven auto that's collapsible. And I guess some are just too ridiculous to be used at all--like a truck with sails or a grocery cart with a steam engine!"

Then Mr. I yawned a bit and added, "I also believe we've done enough thinking for today."

And with that, Dudley, Maybelle, and one walking, talking bear rug thanked Mr. I for his help, and left.

Again

1. Sometimes, you can get ideas by recalling other things in the world which do the same things you need done.

2. You also might find some new ideas by imagining how these same things might be done a hundred or a thousand years from now.

3. Don't be afraid to think of wild ideas. They can be changed or "brought down to earth" later.

4. For new ideas on how to make something better, think of what's wrong with the old something.

5. Sometimes, when you need ideas for something, you can find a LIST of ideas already made.

6. Don't be afraid of suggesting bad ideas. They could lead to some good ideas.

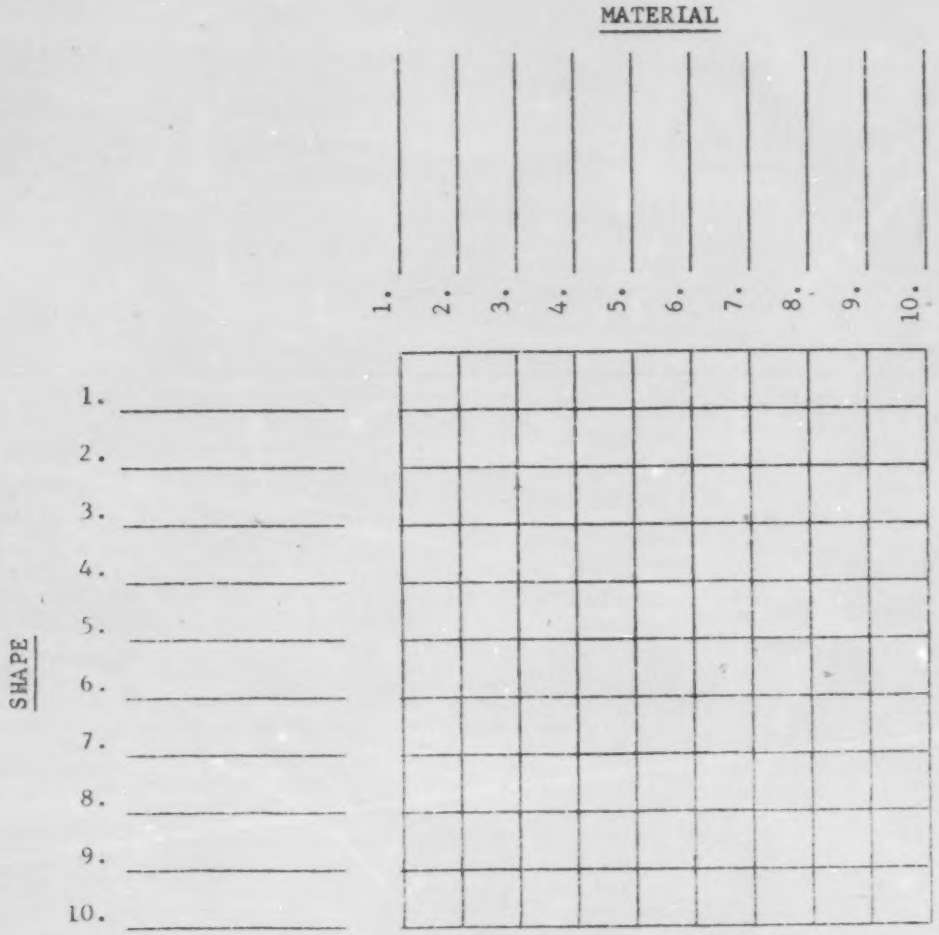
7. Evaluate ideas only after you're through thinking of them, because evaluating and criticizing ideas interferes with thinking of new ideas.

Problem

Let's try a short problem using the CHECKERBOARD METHOD for finding new ideas.

We (which naturally means YOU) can invent some new kinds of travel cases for carrying pets.

Two important things to change would be the shape of the travel case and the material from which it's made. List 10 shapes along the side of this checkerboard, and 10 kinds of materials to make the travel case along the top. Be imaginative.



Now look over the combinations of each shape with each material. These combinations will be in the squares.

List 5 or 10 that you think are really unusual (i.e., that no one has ever thought of before).

Now list 5 or 10 that seem to be the most useful (practical).

CHAPTER V: The Fearless Foursome use a CHECKLIST for Finding Ideas

"I've got a problem for us to solve," announced Mr. I, as Dudley, Maybelle, and Max entered his workshop. This was no surprise since Mr. I always seemed to have an abundance of problems. "My very dear close friend, good old whatsisname, who owns an electronic equipment store, has a new line of do-it-yourself television systems. Each system has a TV camera for taking the picture and a regular-type TV set for showing whatever the camera is pointed at. The TV system will also make video tapes, in case someone wants to make a television film and play it back at a later time."

"What's old whatsisname's problem?" asked Max, glancing around for any unclaimed food goodies. "Doesn't he know how to turn it on? Or can't he decide which show to watch? I'm a Yogi Bear fan myself. 'What's up Booboo?'"

"His problem," continued Mr. I, grinning at the Yogi Bear imitation, "is selling the do-it-yourself TV systems. They're cheap enough that my friend thinks he could

sell them very easily--if he could only decide who to sell them to, and what they might be used for."

"That doesn't sound like a very hard problem," replied Dudley, hauling Max away from the rest of Mr. I's lunch. He was very sure that Mr. I, or anybody else for that matter, could think of who to sell things to and what for.

"The hard part," Mr. I continued, "is that good old greedy whatsisname wants to sell thousands of the systems--so he doesn't want to overlook any possible place his TV systems could be used. Does the problem sound a little harder now?"

"Wow!" thought Dudley. "It sure does! How can we think of thousands of places to sell TV systems?"

"Maybe he needs a professional bear act," inquired Max, who, you may recall, is a professional bear. "With singing, dancing, and witty sayings."

"I think you're a little mixed up, Max," said Dudley, being careful not to hurt Anyone's feelings. "I don't think he really needs a laugh-a-minute bear act to perform on his TV systems."

Max sadly took off his straw hat and put down the cane he was tossing from one paw to the other. "Well, that's show biz," he said, rather unhappily. Then he picked the straw hat back up and began to taste it--just a little--around the edges.

"I believe," laughed Mr. I, returning to the thinking business, "that if we imagine ourselves in lots of different situations or places--like different stores, businesses, or workshops--we can think of lots of uses for the TV system in each of those situations. Then my close friend, good old whatsisname, would have lots of ideas for selling his do-it-yourself TV systems--he'd know who to sell his TV systems to and what they could be used for.

To find lots of new uses for something, imagine yourself in all kinds of different situations (places). Then think of uses for that something in each situation.

"That sounds like a good idea, Mr. I," said Maybelle, who had been quiet so far, except for laughing at Max. "But how do we think of every possible place or situation? Or even almost every situation?"

"I'm coming to that," smiled Mr. I, enthusiastically digging into another of his fascinating mountains of paper. "With the CHECKLIST method for finding ideas, we don't have to think of every situation and place; we just need to find a list of every situation and place. For many problems, we can get lots of ideas just by finding a list which already has ideas on it. The CHECKLIST method makes idea finding much easier and faster!"

For many problems, we can get lots of ideas just by finding a list which already has ideas on it. This is the CHECKLIST method for finding ideas. It can make idea-finding easy and fast.

"Now you're getting mysterious," laughed Dudley, ducking flying wads of paper. "And I give up already. Where do we find a list of thousands of possible places to use a TV system in?"

"Well," replied Mr. I, nearing the bot-

tom of a particularly large pile, "the best CHECKLIST of different places and situations I can think of is the Yellow Pages in the phone book."

"And I bet you just happened to have one," yawned Max.

"Naturally!" agreed Mr. I, finally producing a copy of last year's phone book. "Here's what we'll do. We'll start at the beginning of the Yellow Pages and see if we can find places or situations where a TV system could be used."

"I think we're going to find a million ideas," said Dudley, soberly looking at the thick telephone book. Believe it or not, Dudley was actually worried about finding too many ideas!

"We won't list all of our Yellow Pages situations where a TV system could be used--we'll just get strated so you'll see how the CHECKLIST method works. Dudley, what's the first item in the Yellow Pages?"

"It says 'Accordian Lessons,'" he answered, and turning to Mr. I, Dudley asked, "but how could an accordian teacher use a TV system?"

"That's easy!" cried Maybelle, thinking of herself in an accordian-playing situation (just as Mr. I had suggested). Maybelle was always surprised to find how easy it is to find ideas when you know how.

It's easy to find ideas, when you know how.

She continued, "Anyone learning to play an accordian could watch and listen to a video tape of himself with one of Mr. Whatsisname's TV systems."

Then Dudley quickly added to Maybelle's idea, "And maybe, instead of traveling to the teacher to take his lessons, the accordian student could stay home and send the accordian teacher a video tape of his lesson."

Once again, new ideas can be found by adding to the ideas of others. This is called "idea hitch-hiking."

"Great!" laughed Mr. I. "The accordian teacher could even be in another city or halfway around the world."

Again Maybelle added, "Or if a student were crippled or sick and had to stay in a hospital or at home, with the TV system he could still learn to play the accordian by watching and listening to himself play, and sending some of his video tapes to the accordian teacher."

"Fine, fine!" smiled Mr. I, very pleased. "That's enough for accordians. What's next in the Yellow Pages, Dudley?"

"It says 'Acoustical Contractors,'" answered Dudley. "What on earth can we do with that? In fact, what is it?"

"Ah yes!" said Max, who seemed to know a great deal about acoustical contractors. "Koosta-bobble corn crackers--they're wonderful with cabbage soup and horseradish."

"An acoustical contractor," explained Mr. I, "is a company that tries to control how noisy a room is. They usually put fiberboard squares on the ceiling to absorb noise."

"Maybe," said Maybelle, imagining herself in a place where acoustical ceiling is sold, "the TV system could be used to show customers the different kinds of acoustical ceilings."

"Or maybe," thought Dudley, also pretending to be in an acoustical ceiling store, "the TV system could be used just to make noise--so the acoustical contractor people could show customers how their ceilings reduce the noise coming from the TV system."

"Good!" said Mr. I. "I'm sure good old whatsisname would be interested in these ideas. Now, what's next in the Yellow Pages?"

"Adding and Calculating Machines," answered Maybelle. "I suppose the adding machine people could show customers their complete line of machines by using the TV system, couldn't they?"

"Sure," answered Dudley. Then, hitch-hiking to Maybelle's idea, he added, "And I bet the customers could be taught how to run the adding machines with the TV system, too."

"Maybe," added Mr. I, with another idea hitch-hike, "the company's own repairmen could be taught how to repair new machines with the TV system. The main factory could make the video tapes and send them to different repair shops."

"The next situation in the Yellow Pages is 'Advertising Agencies,'" said Maybelle.

"Gosharoonie!" said Dudley, "I'm sure an advertising agency could use a TV system to see how its own ads will look on television."

Mr. I added, "And their salesmen could use the system to practice their salesmanship--they could give a sales talk in front of the TV camera, and then play it back to see how they looked!"

"Let's look at just one more item," said Mr. I. "I think you can see what a valuable source of ideas a CHECKLIST like the Yellow Pages can be."

A CHECKLIST, like the Yellow Pages, can be a very valuable source of ideas.

"I don't think we can find any ideas here!" said Maybelle. "The next thing in the Yellow Pages is 'African Violets.'"

"Of course we can," replied Mr. I, very sure of himself. "We just have to try."

We can always find ideas. We just have to try.

"I think," said Dudley, giving Maybelle a little hint, "that if I were raising expensive African Violets--I'd want to watch them all the time."

"Hey, that's right!" said Maybelle, "With the TV system, someone could watch the violets all the time. Leapin' lapis lazuli!" cried Maybelle, "the African Violet patches could even be miles apart--and someone still could watch them all at once by using a TV system for each patch."

"All right," smiled Mr. I. "I think that's enough for the Yellow Pages CHECKLIST. We could go on like this for days, finding thousands of ideas for places to sell old whatsisname's TV systems. Naturally, anybody else having something to sell also could use the Yellow Pages as a CHECKLIST of ideas."

"Are there any other good CHECKLISTS of ideas?" asked Maybelle. "I mean, lists of ideas that just need to be looked at?"

"Why certainly!" answered Mr. I. "For instance, if it were Max's birthday and you wanted ideas for a birthday present, you could find hundreds of ideas by looking at a department store catalogue. Catalogues are great CHECKLISTS for finding ideas."

"For Max, you might need a pet store catalogue!" laughed Dudley.

"HUMPH!" growled Max, who didn't like to be reminded that he wasn't a people.

"Remember when Maybelle wanted ideas for writing an English theme?" asked Mr. I. "Any history book is a very good CHECKLIST of ideas for writing a story of any kind.

"Tomorrow," said Mr. I, standing up and looking at his watch (which usually means it's time for visitors to leave), "we'll try using my own CHECKLIST for inventing and improving things, okay?"

"Fine," answered Dudley and Maybelle. And with that, the three of them left--with Max still grumbling about being called a common pet.

One More Time

1. For many problems, we can get lots of ideas just by finding a list which already has ideas on it. This is the CHECKLIST method for finding ideas. It can make idea-finding easy and fast.

2. To find lots of new uses for something, imagine yourself in different situations (places). Then think of uses for that something in each situation.

3. It's easy to find ideas, when you know how.

4. New ideas can be found by adding to the ideas of others. This is called "idea hitch-hiking."

5. A CHECKLIST, like the Yellow Pages, can be a very valuable source of ideas.

6. We can always find ideas. We just have to try.

Exercises

1. Next summer, it's your turn to choose where the family will spend its summer vacation. Anyplace in the United States is fine--but that's a lot of territory to think about. What might be some good CHECK-LISTS to help you decide?

_____

_____

_____

_____

_____

2. Someone in your class has suggested you use a history book as a CHECKLIST to find ideas for a class play. What are some play themes you could find by glancing through your history book?

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

3. Christmas is coming and that means buying Christmas presents for your seventeen cousins, nephews and nieces ... and you don't have very much money (again!) this year. What are some CHECKLISTS you might use to give you ideas for buying or making gifts?

_____

_____

_____

_____

_____

CHAPTER VI: Dudley and Maybelle Learn to use Mr. I's CHECKLIST for Finding Ideas

"Good morning," greeted Mr. I, as Dudley, Maybelle, and Max entered his workshop one Saturday afternoon.

"Good morning!" shouted the trio, in unison.

"Please have some pumpkin cake and strawberry cider," smiled Mr. I. "I invented them myself!"

"Uh ... thank you ... I think." said Maybelle, who suddenly wasn't very hungry.

"Well, ... uh," Dudley began cautiously, "I'm usually a milkshake-and-hotdog man myself, but I'll try just a little."

Max, of course, dug right in. All three of them were surprised to find the snack was actually delicious.

"Last time," said Mr. I, absent-mindedly dunking his elbow into his cider, "I said that I'd show you how to use my own CHECKLIST for finding new ideas."

"Oh, I remember," said Maybelle. "You said that a CHECKLIST can save us lots of

work and can help us find lots of ideas that we might never have thought of, right?"

"Exactly!" agreed Mr. I.

A CHECKLIST of ideas can save lots of work and can help find lots of ideas that you might never have found without it.

"Now this CHECKLIST of mine is mainly used when we have something that we want to change or improve. It's full of ideas for changing or improving just about anything!

Mr. I's CHECKLIST can be used to change or improve just about anything.

"Let's try a practice problem," continued Mr. I, "to see how our CHECKLIST can help find new ideas."

"But we don't have anything to improve," reminded Dudley.

Just then, a fly landed on Mr. I's toe. "SHOO!" whuffed Max, as he picked up a hammer to swat the fly. (Fortunately, Max had rotten aim.)

"Good idea, Max," said Maybelle, turning to Mr. I. "I like shoes and clothes a lot. Will your CHECKLIST be good for designing new kinds of shoes?"

"I don't know why not!" replied Mr. I. "We'll pretend we're shoe designers. Let's start by checking each idea on the CHECKLIST to see if we can find some new and unusual ideas for some wild kinds of shoes. Don't be afraid of suggesting kooky shoe ideas. Our wild ideas can always lead to good, solid ideas!"

1. To use Mr. I's CHECKLIST, just check each idea on the list to see if you can find some new and unusual ideas.

2. Don't be afraid of suggesting kooky ideas because they can lead to good ideas.

"Holey sneakers!" exclaimed Maybelle, who was getting so excited about all of the ideas she was finding that she sat on Dudley's cake! "I can see dozens and dozens of ideas already!"

"I bet all the colors on your CHECKLIST could be used," continued Maybelle, still very

MR. I'S CHECKLIST FOR NEW IDEAS

Change Color?

Blue
Green
Yellow
Orange
Red
Purple
White
Black
Olive Green
Grey
Brown
Tan
Silver
Gold
Copper
Brass
Plaid
Striped
Polka-dotted
Psychedelic
Flowers
Speckles
Paisley
Pop Art
Other Colors?
Color Combination?
Other Patterns?

New Size?

Longer
Shorter
Wider
Fatter
Thinner
Thicker
Higher
Lower
Larger
Smaller
Jumbo
Miniature
Other Size?

Change Shape?

Round
Square
Triangle
Oval
Rectangle
5-Sided
6-Sided
8-Sided
10-Sided
Lop-Sided
Sharp Corners
Round Corners
Egg-Shaped
Doughnut-Shaped
"U" Shaped
Other Shapes?

New Material?

Plastic
Glass
Fiberglass
Formica
Paper
Wood
Aluminum
Nylon
Cloth
Gunny Sack (Burlap)
Cardboard
Steel
Leather
Copper
Rubber
Other Material?
Combination of These Materials?

Add Or Subtract Something

Make Stronger
Make Faster
Exaggerate Something
Duplicate Something
Remove Something
Divide
Make Lighter
Abbreviate
Add New Do-Dad
Add New Smell
New Sound
New Lights
New Flavor
New Beep Beep
New Jingle Jingle
Subtract The Thing That Doesn't Do Anything

Rearrange Things?

Switch Parts
Change Pattern
Combine Parts
Other Order of Operation
Split Up
Turn Backward
Upside Down
Inside Out
Combine Purposes
Other Switcheroo?

New Design?

From Other Countries?
- Oriental design
- Swedish design
- Mexican design
- French design
- Eskimo design
- Russian design
- American design
- Indian design
- Egyptian design
- Spanish design

From Other Time?
- Old West
- Roaring Twenties
- Past Century
- Next Century
- Middle Ages
- Cave Man
- Pioneer

From Other Styles?
- Hippie
- Beatnik
- Other Wierdos
- Ivy League
- Secret Agent
- Elves and Fairies
- Clown
- Football Uniform

excited. "I've never seen copper-colored shoes or paisley shoes! But they sound NEAT!"

"Bleah!" mumbled Max, in a loud sort of mumble. "I'd rather have paisley in my chicken soup--which makes more sense than sprinkling it on shoes!"

"She said 'paisley,' Max. Not parsley!" laughed Dudley. "Paisley patterns are those pretty, flowery, tear-drop patterns--like on Mr. I's necktie ... and I'm sure they'd be better on shoes than in soup!

"Hmmm," continued Dudley, looking at the Shape section of the CHECKLIST. "The only idea I see here is sharp corners--shoes with sharp corners certainly would be different."

"But look at the Materials!" said Maybelle, looking at all the Materials ideas on the list. "There are lots of ideas here. We could make shoes out of plastic, nylon, burlap, or even paper or cardboard. My cousin used to have a dress made of paper--but it caught on fire!"

With this problem, Maybelle seemed to be better at finding ideas than Dudley was. Maybe it's because girls can find girl-type ideas (like ideas for shoes and clothes) better than boys can find girl-type ideas--but then, on the other hand, boys can find boy-type ideas (like motorcycle ideas) better than girls can. (Did that come out right?)

Girls are usually better at finding girl-type ideas, while boys are usually better at finding boy-type ideas.

"Ooo Wow!" cried Maybelle, again losing her cool as she discovered the New Designs section of the CHECKLIST (and she still didn't know she

was sitting on Dudley's cake!). "Why there's just GLOBS of ideas! We could make shoes in styles from different countries--like wooden Oriental shoes or leather Mexican sandals, or Indian moccasin-like shoes, or Eskimo boots for winter, or Spanish dancer boots. Or we could design shoes with spats from the last century, or cowboy boots from the Old West!"

"You're doing fine!" chuckled Mr. I, pleased to see how quickly Dudley and Maybelle had learned to use his CHECKLIST. "Now what about the Other Styles section of this list? Any ideas there?"

"We've already thought of sandal-like shoes," replied Dudley, looking at the first three ideas on the Other Styles list. "But now I see one, I think. Boys couldn't wear them, but girls might be interested in elf-like shoes--with curly pointed toes and in pretty colors. Do you think so, Maybelle?"

"Oooo yes!" answered Maybelle, trying to curl her toes upward to help her imagine how elf-like shoes might look.

"Don't forget," added Mr. I, "that any of these last shoe ideas you thought of could be made in any of our colors, and could be made from many of the materials on our list--so you've actually got hundreds of possible ideas, right?"

"We do?" asked Max, beginning to count on his toes.

"Certainly," replied Mr. I. "For example, your elf-like shoes could be made in any of our colors, or combinations of colors, or patterns of colors, couldn't they? Maybe they could even be made of paper or cardboard, and thrown away after wearing them a few times. Do you see what I mean? There are hundreds of possibilities!"

"There sure are," chorused Dudley and Maybelle.

"But let's get on," said Mr. I, getting on. "What haven't we looked at yet on the CHECKLIST?"

"You haven't looked at the New Size section, or the Add or Subtract Something section, or the Rearrange Things section," said Max. "You know, I'll bet there's still some pumpkin cake left."

"Help yourself, Max," said Mr. I. "Now, Dudley and Maybelle, can you find a few more shoe ideas from our CHECKLIST?"

"Naturally!" Maybelle modestly replied as she looked at the New Sizes ideas. "Just about any of the shoes we've thought of could be made longer or thinner or higher or lower ... and my elf-shoes in a miniature size would be adORable baby shoes!"

Dudley, after inspecting the Add or Subtract Something section, announced, "I suppose that any kind of athletic shoes, like football or tennis shoes, could be made faster--by making them lighter. And as for exaggerating something, a shoe with a giant ribbon, maybe 2 feet wide, seems pretty funny--maybe for a halloween party or something."

Maybelle, also looking at the Add or Subtract Something section, spied the remove something idea and added, "Maybe, with some shoes, the tongue could be removed. Psychedelic shoe laces might look prettier that way, especially with glow-in-the-dark stockings behind them instead of a beat-up old shoe tongue!"

Then Max looked at the Add or Subtract Something list while he chewed on a boot. "A new flavor certainly would be a good idea. Something in honey would be nice, or perhaps a razzleberry flavor .. or else," he continued, combining his ideas, "maybe a shoe with a honey-flavored heel and a razzleberry toe would be a good idea." And with that delicious thought, Max wedged his head firmly into the boot.

"Wonderful, Max!" laughed Mr. I. "Now, what about the last section, Rearrange Things? Any new shoe ideas there?"

"Hmmm," hummed Dudley and Maybelle. Then Dudley said, "I don't see much here. Maybe leather shoes could be made sort of inside out, with the rough part of the leather showing. That's different."

"Well," thought Maybelle, looking at the combine purposes idea, "maybe we could add a pocket--to combine the purposes of a shoe and a purse. I just thought of another neat switch," continued Maybelle, thinking about how to rearrange things. "Why not have the shoes lace in the back, instead of the front. That might be interesting."

"Okay," smiled Mr. I. "I think you understand how to use our idea CHECKLIST."

"Gee!" said Dudley, looking over the whole checklist, "if we combined each idea under the Change Color section with each idea under the

Change Shape section, and then combined these ideas with each of the ideas under the New Materials section, and so on, I wonder how many possible combinations of ideas there are in your CHECKLIST?"

"Not many," chuckled Mr. I, slyly. "Only about 250 million! Just one more thing," continued Mr. I. "In case you don't have my complete CHECKLIST handy sometime, you can think of lots of ways to improve things by remembering just seven items:

1. Change Color
2. New Size
3. Change Shape
4. New Material
5. Add or Subtract Something
6. Rearrange Things
7. New Design

"Isn't that a short form of your long CHECKLIST?" asked Maybelle.

Mr. I's long CHECKLIST for finding ideas can be put into a Short Form:

Change Color		Add or Subtract Something
New Size		
Change Shape	–	Rearrange Things
New Material		New Design

"Right," replied Mr. I. "Only it's a lot easier to remember. But we've had enough thinking for today. See you all tomorrow."

Review

1. A CHECKLIST of ideas can save lots of work and can help find lots of ideas that you might never have found without it.

2. Mr. I's CHECKLIST can be used to change or improve just about anything.

3. To use Mr. I's CHECKLIST, just check each idea on the list to see if you can find some new and unusual ideas.

4. Don't be afraid of suggesting kooky ideas. Wild ideas can always lead to good ideas.

5. Girls are usually better at finding girl-type ideas, while boys are usually better at finding boy-type ideas.

6. Mr. I's long CHECKLIST for finding ideas can be put into a Short Form.

Change Color	Add or Subtract Something
New Size	Rearrange Things
Change Shape	New Design
New Material	

Practice

1. Think about a POP-UP TOASTER. Now look over Mr. I's long CHECK-LIST on page 71 and see how many ideas you can find for inventing new POP-UP TOASTERS.

Write down 20 or 30 of your ideas.

1. _____ 16. _____
2. _____ 17. _____
3. _____ 18. _____
4. _____ 19. _____
5. _____ 20. _____
6. _____ 21. _____
7. _____ 22. _____
8. _____ 23. _____
9. _____ 24. _____
10. _____ 25. _____
11. _____ 26. _____
12. _____ 27. _____
13. _____ 28. _____
14. _____ 29. _____
15. _____ 30. _____

2. Using Mr. I's short CHECKLIST on page 77, how many ideas can you find for inventing new belts?

Write down 20 or 30 of your ideas.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____

CHAPTER VII: How in the World are Things Held Together?: Dudley, Max, and Maybelle Learn the FIND SOMETHING SIMILAR Method

"Dud, when we were working on our motorcycle problem I mentioned that sometime we might invent some new kinds of nuts and bolts."

"Sure, I remember," answered Dudley. "You said that we would invent some 'new ways to hold things together.'"

"And since nuts and bolts hold things together," sang Max, "you're talking in nutty circles ... and speaking of circles, would you happen to have a doughnut about you? Or perhaps a cheekful of something else?"

"You can have a doughnut later, Max, I promise," promised Mr. I. "For now, let's first be problem analyzers."

"But I don't need any of those," cried Max. "My stomach's not upset--just hungry!"

"What he means," laughed Maybelle, "is that we're going to learn to look carefully at problems--to 'analyze' them."

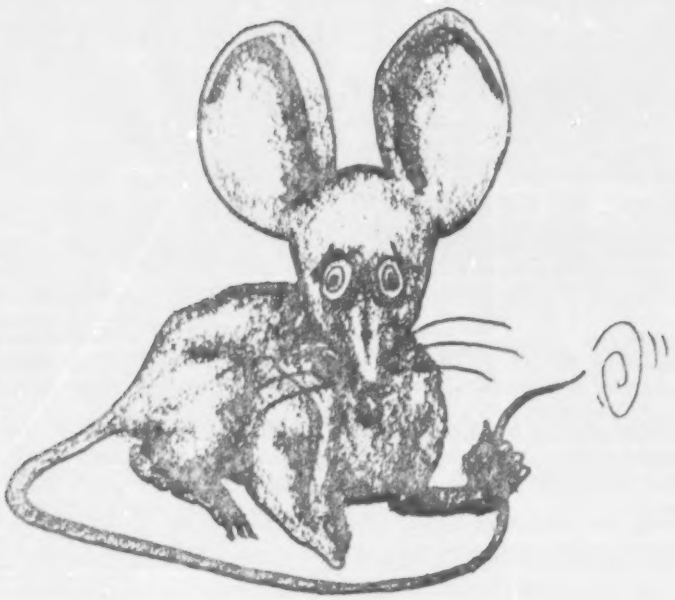
"Particularly," continued Mr. I, "let's try to look at what the problem really is. Sometimes, we can find better and more unusual ideas if we look at the problem in a very 'general' way."

"I don't think I completely understand," said Dudley, tripping over a bench.

"Which means he didn't understand at all!" added Max. "And neither did I, so could you please be a little more clear?"

"Maybe some examples will help," said Mr. I. "With nuts and bolts, at first the problem seemed to be to 'invent some new kinds of nuts and bolts.' But when you think about it, what we really want are 'new ways to hold things together.' Looking at the problem in this more general way, we don't just think about different kinds of nuts and bolts--we think of lots of different ways to hold things together."

"Oh," said Dudley, beginning to understand, "you mean that by looking at the problem as finding 'new ways to hold things together,' we open our minds to lots more new kinds of ideas."



"Exactly!" answered Mr. I. "Let me give you another example. Let's say we want to invent a better mouse trap. We probably could think of lots of ways to improve our mouse trap, but what we really want to do is to ... "

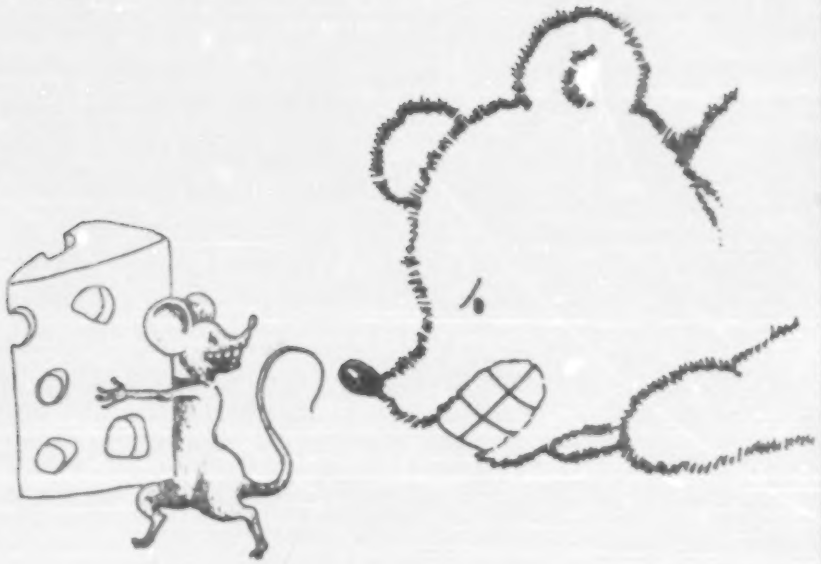
"To get rid of (EEK!) mice!" interrupted Maybelle.

"Right!" agreed Mr. I. "And by looking at the mouse trap problem in this more general way, we open our minds to lots of different kinds of ideas for getting rid of mice--instead of just thinking about building a bigger and better trap."

Sometimes, if we look at our problem in a more general way, we open our minds to lots more different kinds of ideas.

For example, instead of "inventing a bigger and better mouse trap," what we really want are "better ways to get rid of mice!"

"All right," said Mr. I, who was anxious to get on. "Our problem for today is 'inventing ways to hold things together.' I have a special method that should work very nicely for this kind of problem."



Dudley and Maybelle were getting very interested. They knew Mr. I's methods for finding new ideas were always easier than they thought--and usually lots of fun besides!

"I suppose we could call this our FIND SOMETHING SIMILAR method for finding new ideas," said Mr. I. "Here's what we do. When we want new ideas for a gadget to do something, we think of other things in the world that do the same things we want done. We've actually used this method before, Dudley. Remember?"

With the FIND SOMETHING SIMILAR method, we can find ideas by thinking of other things in the world that do the same things we want done.

"Sure!" replied Dudley, "we were trying to think of different kinds of vehicle bodies and motors, so we thought of different kinds of vehicle bodies and 'ways to make things go' that are found in the world."

"Now," said Mr. I, " we want to think of different ways that things are held together in the world. First let's think of 'old' ways that things are held together. Then we'll go back and see if these 'old' ideas, or combinations of 'old' ideas, lead to some new and unusual ideas."

"Well," began Dudley, thinking of ways that things are held together, "my school papers are held together with paper clips, staples, scotch tape, glue, peanut butter, and the kind of paper fasteners that poke through a hole, then bend apart ... my shirt stays together because someone sewed it with thread. I don't think any of these things are better than ordinary nuts and bolts, though--especially when it comes to holding a motorcycle together!"

"Maybe not, but we'll see," said Mr. I, making a list of 'old' ideas on his chalkboard.

"Mr. I," interrupted Maybelle, "shouldn't we put nuts and bolts on your list? After all, this was what started this whole mess."

"Of course," smiled Mr. I. "And later we'll combine nuts and bolts with our other ideas for some new idea combinations. Now I'll give you another important hint for finding ideas. Think of how some animals, bugs, or even plants hold things together. "

Sometimes, for ideas on solving a problem, think of how animals, bugs, and maybe even plants have solved the same problem. This is one way to use the FIND SOMETHING SIMILAR method.

"What about bees, Max?" asked Mr. I, knowing that Max was an expert when it came to honey-makers. "How would bees hold things together?"

"Hmmm!" thought Max, although it sounded more like 'Grrr!' "Of course I wouldn't really know," he began, pretending not to be a honey thief, "but I think bees use bees' wax and honey to stick things together--like in a honeycomb--while hornets use sticky mud to sort of 'glue' their hornets' nest together. Now hornets aren't really very big, so they just use little dabs of sticky mud for glue. Get it? A little dab'll glue ya'!" And once again, overcome with his fantastic wit, Max toppled over backwards, shrieking in laughter.

"Okay," chuckled Mr. I, "and now ... "

"And one more thing," piped in Max, who suddenly became very serious, "I don't like them very much, but cockleburrs also are very good at tangling up my fur. That's sort of like holding things together."

"Good!" said Mr. I, very pleased with Max's cooperation. "Dudley, can you think of other ways that animals, bugs, or plants hold things together?"

"I have a couple of ideas," answered Dudley. "First of all, spiders

spin spider webs to hold things together; beavers also use sticky mud, just like hornets ... and just about all plants hold themselves to the ground by growing roots that sprout in different directions."

"Very good!" said Mr. I. "Now let's just look around us for a few more ideas. It's worked before, remember?"

Look around you for ideas.

"I remember," replied Dudley. "We found ideas for new kinds of buttons by looking around your workshop. And ... Hey! I already see some ways things are held together. Your motorcycle has parts that are welded together."

"Guess what we forgot!" laughed Dudley, looking around the room again. "Good old fashioned nails!"

"We sure did," agreed Mr. I. "I bet there are other things like nails that we forgot, too.

"So here's still another way to use the FIND SOMETHING SIMILAR method," he continued, with that serious look that meant he was going to say something weighty. "We can often find problem ideas just by thinking about important problem words. For example, Max, what does the word nails remind you of?"

"Ahem!" said Max, clearing

his throat for a speech. "Nails remind me of pins. Yes, nails often remind me of pins. And pins and nails remind me of thumb tacks. And thumb tacks and pins and nails, all together, remind me of something I wouldn't like to sit on very much!"

We can often find problem ideas just by thinking about important problem words. By thinking about the word nails, Max FOUND SOME SIMILAR THINGS, didn't he?

"A bent nail reminds me of a fish hook," said Dudley, also thinking about the word nail.

"I think we have enough 'old ways to hold things together,'" said Mr. I, writing the last few ideas on the chalkboard. "Now let's see what new ideas we can find for 'holding things together.'"

"Gee," said Dudley, "I was just thinking about your CHECKLIST for new ideas that we used last time. Any of our nuts and bolts, nails, paper clips, paper fasteners, pins, and thumb tacks could be changed by just going through

Old Ideas	
Paper clips	Staples
S../tch tape	Glue
Paper fasteners (bend apart type)	Sewing
Bees wax	Honey
Mud	Cockleburrs
Spider webs	Growing roots
Weld--with heat	Nuts and bolts
Nails	Safety pins
Straight pins	Thumb tacks
Fish hooks	Peanut butter

your idea CHECKLIST. I mean, they could all be made in different shapes and colors, and they could be made out of new materials--like plastic or aluminum or something."

"I know I'd like nuts and bolts in different colors," said Maybelle. "Polka-dotted ones would be much prettier!"

"Okay," laughed Mr. I. "It's true that with our CHECKLIST, or our PART CHANGING method for finding new ideas, we could think of all kinds of new colors, sizes, shapes, and materials for our nuts and bolts and things.

"But now let's think of some entirely new ideas by combining some of the ideas on our chalkboard ... and don't be afraid to think of wild ideas, even if they sound ridiculous!"

1. You can think of ideas for changing just about anything by using Mr. I's CHECKLIST for new ideas, or by using the PART CHANGING method.
2. You can always find new ideas by combining old ideas.
3. Don't be afraid to suggest wild ideas.

Dudley, Maybelle, Max, and Mr. I studied their list of "old ideas" for holding things together, looking for new and interesting (and wild) combinations of ideas.

"I see a couple of idea combinations," began Dudley. "If nails were made like our bend-apart paper fasteners they might actually work better than regular nails! And if nuts and bolts came with some kind of glue

on them, I bet they wouldn't work loose quite so easily. Or maybe some kind of special sticky tape, like scotch tape, could be put on the bolts, which would do the same thing as glue!"

Maybelle also was finding some unusual idea combinations. "If we combined nails with cockleburrs," she began, "we'd have a little ball of iron nails--which ought to hold something together. You could put this iron cockleburr between two pieces of wood, bash the wood with a hammer, and KERSMASH! The two pieces of wood would be stuck together without any nail holes showing."

"GRUMPH!" growled Max, looking at the list of ideas on the chalkboard. "If you combined mud with cockleburrs and honey--you'd have nothing but a dirty snack that hurts all the way to your stomach. What a rotten idea!"

"Not all the possible combinations are good ideas," laughed Mr. I. "But no matter," he said, getting back to business. "Dudley, what about some new welding ideas. How are people going to weld things together in a hundred or a thousand years from now?"

For new ideas on how to do something, think of how it might be done in a hundred or a thousand years from now.

"Maybe," replied Dudley, "we could weld things together without a welding torch--by using chemicals or a laser beam."

"Or maybe by just using very high pressure," said Mr. I. "If things are pressed together hard enough, I'll bet they'd melt and weld together."

"Impossible!" snorted Max.

"It's pretty wild," corrected Mr. I. "But that's fine. Good inventors just don't believe in the impossible!"

Good inventors--and other good idea finders--just don't believe in the impossible.

"I was just thinking," said Dudley, looking at the list of old ideas, "a fish hook stays hooked to a fish because there's a barb on the end of the hook. If nails or pins or thumb tacks had little barbs on them, they'd 'stay hooked' better, too!"

"That's good, Dudley," said Maybelle, who also was combining ideas from the chalkboard. "You know, if there were some way a nail or bolt could grow roots--then two things that were nailed or bolted together would really stay together."

"How could we make a nail 'grow roots?'" asked Mr. I, who suspected that this wild idea might become a good idea.

"I know," cried Dudley, spying an empty bottle of Coola Cola with a straw in it. "If the nail were hollow, like a straw, you could squirt some kind of Magic Liquid Nail through the hollow nail. It would spread out, harden, and be just like a 'nail' with roots!"

"A nail with roots!" scoffed Max. "While you're at it, I guess you might as well invent thumb tacks with flowers on them, or how about a few nuts and bolts with razzleberries on them--not that we need any more NUTS around here!"

Old Ideas	New Ideas
Paper clips	Paper clips, nails, pins,
Staples	thumb tacks--all in
Scotch tape	different colors, sizes,
Glue	shapes, and made of
Paper fasteners	different material
(bend apart type)	(such as plastic, copper,
Sewing	and so on).
Bees wax	Nails that bend apart like
Honey	paper fasteners
Mud	Nuts and bolts with glue
Cockleburrs	(or sticky tape) on them
Spider webs	Iron cockleburr
Growing roots	Weld--with chemicals
Weld--with heat	Weld--with laser beam
Nuts and Bolts	Weld--with high pressure
Nails	Super-sharp nail
Safety pins	Nails, pins, thumbtacks
Straight pins	with barbs on them
Thumb tacks	Nails which "grow roots"
Fish hooks	
Peanut butter	

"Now Max, you never know where good ideas might come from," said Mr. I. "But we've done enough thinking for today."

"Well, I think we really learned something," grinned Dudley, "especially how to use the FIND SOMETHING SIMILAR method for finding new ideas."

Again, with the FIND SOMETHING SIMILAR method, we find ideas by thinking of other things in the world that do the same things we want done.

You can think of how animals, bugs, and plants have done the same things.

You can just think about important problem words--which will remind you of SIMILAR things.

"And we learned to think of our problem in a broad, more general way," added Maybelle, "which helps find new and unusual ideas."

"That's right," agreed Mr. I. "We didn't just try to invent new nuts and bolts; instead, we tried to think of 'new ways to hold things together.' This opened our minds to lots of possible ideas. Good-bye now!"

Review

Don't forget:

1. Sometimes, if we look carefully at what our problem really is, in a more general way, we open our minds to lots more different kinds of ideas. Remember the mouse trap example?

2. With the FIND SOMETHING SIMILAR method, we can find ideas by thinking of other things in the world that do the same things we want done.

3. Sometimes, for even more ideas, think of how animals, bugs, or even plants have solved the same problem. This is one way to use the FIND SOMETHING SIMILAR method.

4. Another way to find problem ideas with the FIND SOMETHING SIMILAR method is to think about important problem words. They will remind you of SIMILAR things.

5. Again, look around you for ideas.

6. You can think of ideas for changing just about anything by using Mr. I's CHECKLIST for new ideas, or by using the PART CHANGING method.

7. You can always find new ideas by combining old ideas.

8. Don't be afraid to suggest wild ideas.

9. For new ideas on how to do something, think of how it might be done in a hundred or a thousand years from now.

10. Good inventors (and other good idea finders) just don't believe in the impossible!

Exercises

1. Imagine your school has a parking problem (which it probably does). Let's find ideas for solving this problem by thinking of how bees, squirrels, ants, shoe stores, clothing stores, and so on "store things."

List some of your ideas.

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

Put a star (★) next to your best ideas.

2. You have to take your baby brother to your grandmother's house for the day. It's a long walk and your baby brother's a very fat baby. See how many ways you can think of to carry something from one place to another. (Hint: Think of how other people from different countries or times in history carry things, and how animals, birds, fish, insects move things around.) Maybe one of these ways will help you find an easier way to move your (fat) brother to your grandmother's.

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

3. Below are some specific problems. See if you can state the problem more generally--to open your mind to more kinds of solutions.

(a) Your English theme got rained on this morning.

_____

_____

(b) Snuffy Applebottom misses his first two classes every morning because he doesn't hear his alarm clock.

_____

_____

(c) Every day Clem Stumbles scuffs his shiney shoes on his bicycle pedals.

_____

_____

(d) Just before lunch, everyone in class hears your empty stomach growl.

_____

_____

CHAPTER VIII: Our Heroes Invent 2,016 Ice Cream Flavors

"Mr. I," began Dudley one Tuesday afternoon, "you've shown Maybelle and Max and me lots of ways to think of new ideas!"

"Good!" answered Mr. I. "It is important to know that you can always find new ideas, if you try. Besides, I think you're beginning to see that any of us can learn to think of new ideas."

1. You can always find new ideas, if you try.
2. Any of us can learn to think of new ideas.

"But now how about a little snack!" announced Mr. I. "Would you like some ice cream?"

"Oh yes!" said Maybelle. Then, remembering some of Mr. I's strange eating habits--like the carrot sandwiches, chicken-soup sundaes, and pumpkin cake--she quickly added, "Uh ..., but I may not be too hungry... so, uh ..., what flavor could it possibly be?"

"Knowing Mr. I," laughed Dudley, "it could be just about any flavor! But it's probably plain old oyster!"

"It's actually a surprise for Max," laughed Mr. I. "Max, can you guess what flavor it is?"

"For me?" cried Max. "Wow! I mean, really? And well, gee, uh ..." Max was obviously getting very excited--and very mixed up.

"Well!" he stuttered, trying to get control of himself, "Oyster ice cream certainly would be a surprise! But next time, maybe you could try honey-flavored ice cream or maybe razzleberry flavored. That is, if it's all the same to you?"

"It's honey-flavored this time, Max," answered Mr. I, "and just for you!"

Max was so happy and deeply touched that between the lump in his throat and the tears in his eyes, he couldn't eat or see his ice cream (which Mr. I almost dumped on his nose) for several minutes.

"I know what would be fun!" cried Maybelle. "Let's see how many different ice cream flavors we can invent!"

"Great!" answered Dudley. "I'll bet that with Mr. I's methods, we can think of hundreds of ideas for new ice cream flavors."

With Mr. I's thinking methods, we can usually think of hundreds of ideas for many kinds of problems.

"all right!" agreed Mr. I. "We'll do it! Which of our methods do you think would produce the most new kinds of ice cream?"

"Hmmm," thought Dudley. "The first method we used was the PART-CHANGING method. We thought of each part, or quality, of the thing we wanted to change, and then we thought of different ways to change that part or quality."

With the PART-CHANGING method, we think first of each part, or quality, of the thing we want to change; then we think of different ways to change that part or quality.

"What are the qualities of ice cream that could be changed? asked Mr. I.

"Flavor is one quality of ice cream," answered Maybelle, excitedly spilling her ice cream in her lap and sloshing it down her left leg.

"I suppose the color is another important quality," added Dudley, not noticing The Accident. "But I don't think that the qualities of size or shape are much help ... not for inventing new kinds of ice cream, at least."

"Perhaps not," agreed Mr. I, handing Maybelle a sponge to sop up her sticky-creamy clothes. "Another quality which would help, though, is extra goodies to put in the ice cream--like cherries or different kinds of nuts!"

"I know!" cried Maybelle, who was pretty much back in order, "Let's make up a CHECKERBOARD with flavors on one side and extra goodies on the other side. That should give us smillions of new ice cream flavors!"

1. With the CHECKERBOARD method, we list specific examples of one thing along one side of the checkerboard, and specific examples of another thing along the other side. The combinations of ideas found in the squares could be pretty good. Remember?

2. The CHECKERBOARD method can produce hundreds of ideas for some problems.

"Good!" said Mr. I. "And in order to think of different kinds of flavors and extra goodies for our CHECKERBOARD--let's use some of our other thinking methods, like the CHECKLIST method and the FIND SOMETHING SIMILAR method!"

"Sounds great!" agreed Dudley. "That ought to give us hundreds of ice cream flavors--and I bet lots of them will be brand new!"

"I bet lots of them will be pretty disgusting!" added Max. "Oyster ice cream--YECH!"

"You're both right," said Mr. I. "With the CHECKERBOARD method we will think of hundreds of new ideas, but many of the ideas will be pretty disgusting--which really doesn't matter because some of the ideas will be new and quite good, which is what counts!"

With the CHECKERBOARD method, many of the idea combinations will be useless or even pretty disgusting--which really doesn't matter because some of the ideas will be new and quite good.

"Where should we begin?" asked Mr. I.

"I can't think of a CHECKLIST of flavors that we could use for ideas," exclaimed Maybelle, so why don't we just think about the word FLAVOR--and see what happens! Didn't you say this was one way to use the FIND SOMETHING SIMILAR method?"

One way to use the FIND SOMETHING SIMILAR method was to just think about important problem words. The ideas you find are SIMILAR TO that problem word, right?

"Good idea!" agreed Mr. I. "I do have a CHECKLIST in mind, but let's use it after we run out of other ideas for flavors and extra goodies.

Now, Max, what do you think about when you think about FLAVORS?"

"That's easy!" said Max, polishing off the last drops of his snack, "I naturally think about razzleberry flavor and honey flavor, and sometimes I think about maple syrup flavor; because if the honey is in a maple syrup tree, and if I happen to be climbing up that way, I might, if I'm very lucky, find a little bit of both!

"And," continued Max, (who knew quite a bit about berry flavors, too) "sometimes I think about blueberry or strawberry or blackberry and maybe even gooseberry flavors." (Max also thought to himself, "I like dead rotten fish, too," but he fortunately didn't mention that flavor!)

"All right, Max, you did just fine!" said Mr. I. "Now, Dudley and Maybelle, what does the word FLAVOR make you think of?"

"Well," began Dudley, slipping a good slip in Maybelle's ACCIDENT, to start with, "we have vanilla, chocolate, and strawberry."

"And pineapple, butterscotch, and cherry," added Maybelle, helping Dudley up. "And orange."

"What about some extra goodies to go into the ice cream?" asked Mr. I. "Think about EXTRA GOODIES."

"I'm thinking of different kinds of nuts," replied Dudley, "like walnuts and pecans."

"All right then," smiled Mr. I "what comes to mind when you think about the word NUTS?"

"I think of a disgusted squirrel!" answered Max, happily.

"What we want, Max," explained Maybelle, "are different kinds of nuts--nuts that might be good in ice cream."

"Nuts," thought Dudley. "There are peanuts, Brazil nuts and hazel nuts."

"And cashew nuts and pistachio nuts, too" added Maybelle.

"Now don't be silly!" growffed Max. He thought "pistachio" was the puppet who turned into a real boy!

"Besides nuts," said Mr. I, hurrying up the thinking a bit, "we could also have cherries and bits of pineapple in our ice cream... and the berries that we listed under flavors could also be listed as extra goodies--like blackberries, gooseberries, strawberries, blueberries, and Max's razzleberries.

Then Maybelle asked, "You mean we could have the same thing, like blueberry, listed on both sides of our CHECKERBOARD? I mean, could we list blueberry as a flavor and as an extra goody?"

"Certainly," said Mr. I. "We'll find many more ideas that way! And wouldn't blueberries be good in blueberry flavored ice cream? Or in gooseberry-flavored ice cream?"

"I suppose so," agreed Maybelle, though she'd never really tasted blueberries in gooseberry ice cream. In fact, she'd never even heard of gooseberry ice cream!

"I'll tell you what," said Mr. I, noticing that Dudley and Maybelle were running out of flavor and extra-goody ideas, "let's take a short walk."

"Fine!" agreed Max, "I've had enough of this problem too!"

"I'm afraid we're not through with the ice cream problem," replied Mr. I. "We're going over to the supermarket. I said that I did have a CHECKLIST of flavors and extra goodies we could use, remember?"

"Hoo-Ha!" yelled Dudley, "a supermarket would be a big CHECKLIST of ideas for ice cream flavors and extra goodies! Let's go!" He jumped up and, once again, his feet skidded out from under him in Maybelle's ACCIDENT, and BOMP!...

As they entered the store, it was clear that they'd find lots of unusual ideas for ice cream flavors and extra goodies--ideas they never would have thought of without this strange idea "checklist." There were so many ideas!

> A good CHECKLIST can help you find many unusual ideas--ideas you might never think of without the list.

Maybelle excitedly ran ahead to the fruits and vegetables section, with Mr. I close on her heels writing down flavors and extra goodies as fast as Maybelle blurted them out. Her ideas came out something like, "WOW, look at all these flavors! Apple-orange-lemon-lime-grapefruit-cherry-pineapple-plum-grape-peach-banana-coconut-strawberry-cranberry-

watermelon-and-cantaloupe. And for extra goodies! Grapes-cranberries-cherries-and maybe-chunks-of-orange-lemon-grapefruit-peach-banana-pineapple-plum-strawberries-and-coconut! And here's some raisins. They could go into your extra goodies list too!"

Mr. I was hurriedly writing down all the ideas for flavors and extra goodies, being careful not to add the ideas they'd already listed (like cherry and strawberry).

"Gosh!" said Dudley, "That's a lot of ice cream flavors and goodies--and most of them sound awfully good, too!

"I wonder," continued Dudley, thoughtfully looking over the vegetable display, what about vegetable flavors? We'd sure find some unusual ideas here!"

"Why not?" replied Mr. I, who was always anxious to hear wild ideas--such as vegetable-flavored ice cream. He knew that wild ideas often lead to good ideas. "Maybe vegetarians or weight-lifters would actually LIKE some vegetable ice cream flavors."

Creative thinkers, like Mr. I, are always interested in wild ideas. They know that good ideas often start from ridiculous-sounding ideas. Watch!

"All right," agreed Dudley, "let's write down these 'flavors': carrot, green bean, spinach, cabbage, tomato, celery, potato, onion, corn, and ... Hey, here's a good idea--popcorn flavored ice cream! Or what about potato chip ice cream."

"You see?" chuckled Mr. I. "Our wild 'bad' ideas did lead to at least two pretty good ideas!"

"And maybe for extra-goodies," continued Dudley, not noticing Max's face, which was changing from green, to purple, to red, and back to green, "maybe someone, somewhere, would like to try ice cream with bits of carrot, bean, onion, or spinach in it ... But not me! I wouldn't mind bits of popcorn, though."

"Okay, Dud," smiled Mr. I, stepping over a sick bear as he wrote down every idea. "Except for the popcorn and potato chip ideas, your vegetable flavors may not sound like the best of today's flavors, but we can always throw them out

later. Actually, health-food addicts would probably enjoy them and I wouldn't mind trying some ice cream with bits of carrot or onion in it...might even be good!"

1. Mr. I is cleverly writing down ALL of their ideas, good and bad. It is easier to throw out bad ideas later than it is to think of all of the ideas in the first place.

2. He also knows that "bad" ideas, like vegetable flavored ice cream, might lead to good ideas--like popcorn or potato chip flavored ice cream.

Passing the milk department the group added cottage cheese, buttermilk, whipped cream, and egg nog to their list of flavors, and bits of swiss cheese to their list of extra goodies.

"Gee," said Maybelle, as they passed the meat counter, "I wonder if people would like steak flavored ice cream, or maybe pork chop flavored ice cream."

"If people wouldn't," answered Mr. I, adding steak and pork chop to their list of flavors, "I'm sure dogs would. Most dogs love ice cream anyway, and meat flavored ice cream would be a real treat!"

"Especially if there were bits of steak and pork chop--extra goodies--in the ice cream," said Dudley. Then he added "Hey! Do you know what we just did? We just invented ice cream for dogs!"

While Max propped himself up in the honey section, which magically made him feel better, Dudley, Maybelle, and Mr. I scooted down another

aisle of the supermarket CHECKLIST and quickly added peanut butter, molasses, dill pickle, and chili to their list of flavors. At the soda pop rack, root beer and Coola Cola also jumped into their flavor list, and at the candy counter they added licorice, peppermint, and bubble gum flavors. Marshmallows, gum drops, chocolate chips and peppermint candies became extra goodies. Then Maybelle spied the spices.

"Leapin' lizards!" cried Maybelle, streaking off toward the spice rack.

"Oh no!" groaned Max. "Not lizard flavored ice cream!"

"Cinnamon ice cream really sounds delicious!" she exclaimed. "I bet nutmeg and cloves would be good flavors, too."

And that was that! Since Max was fully recovered from his latest setback, all four of our heroes left the CHECKLIST supermarket--very pleased with all of the ideas they'd found.

"Well," said Mr. I, looking over his long list of flavors and extra-goodies, "we found 56 ideas for ice cream flavors, which we can put along the top of our CHECKERBOARD, and 35 ideas for extra goodies, which we'll put along the up-down side of our CHECKERBOARD."

"And the idea combinations--that is, the combination of every flavor with every kind

of extra goody--will be found in the squares of the CHECKERBOARD," added Dudley.

"I have another kind of extra goody," said Max, very slowly, "and that's nothing. We really should have a nothing on our extra goody list, because sometimes flavors with no extra goodies at all would suit me just fine!"

"You're absolutely right, Max," agreed Mr. I. "I'll put a 'nothing' at the top of our extra goody list--which now makes 36 extra goodies."

"Gosh," said Maybelle, "how many different ice cream combinations are there? I mean, altogether."

"We did better than I thought," laughed Mr. I. "We actually found two thousand and sixteen kinds of ice cream!" (56 X 36 = 2,016!)

"Some of them are pretty terrible," admitted Dudley, remembering his bad trip through the vegetable department.

"But some would be just delicious!" said Maybelle. "And new, too. There are almost too many good ideas to think about all at once!"

"I just thought of something, Mr. I," said Dudley, "You once told us that to find even more ideas, we could combine some of the ideas we already have. So, if we put two or even three different kinds of extra goodies in each ice cream flavor, we'd have even more idea combinations!"

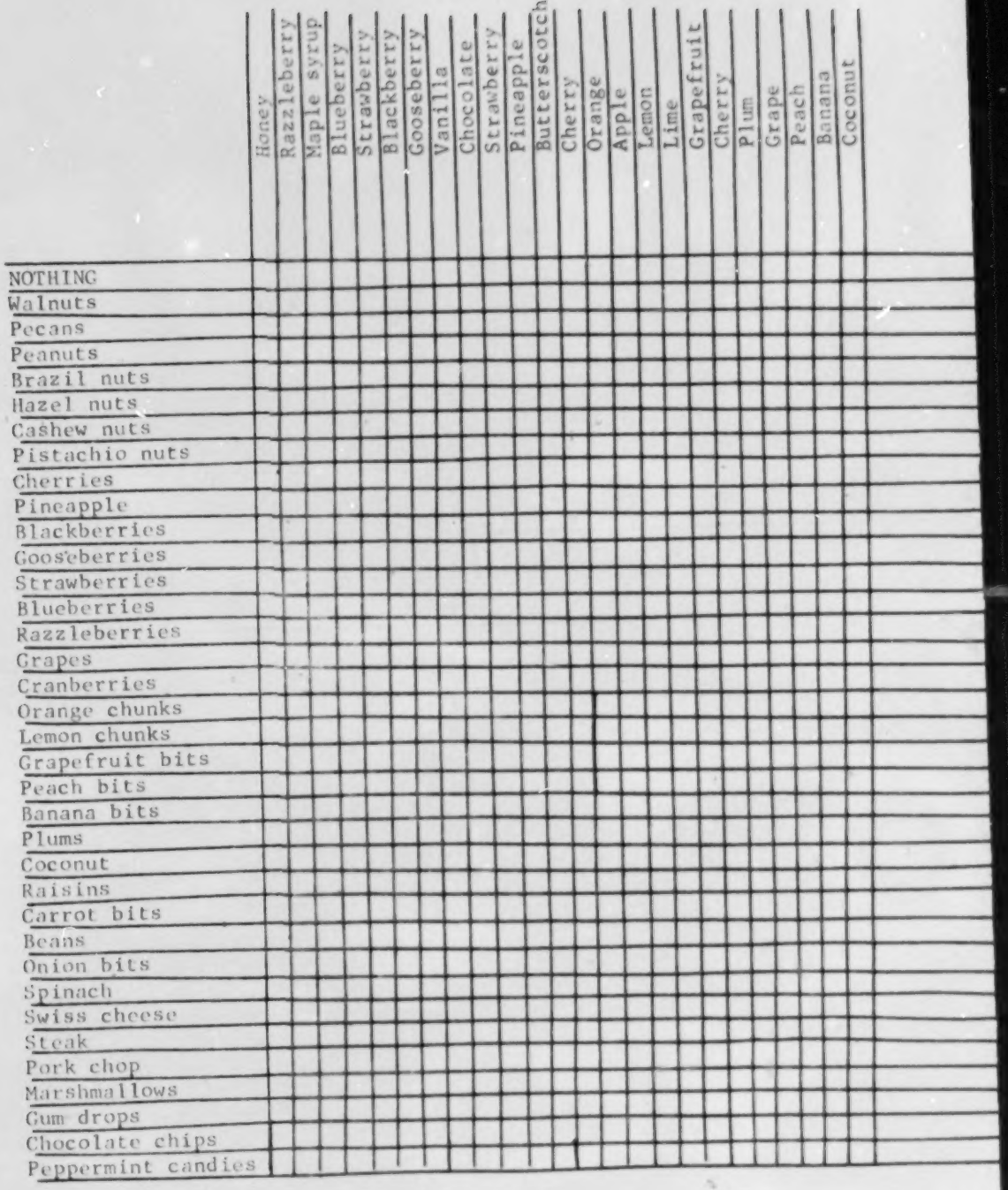
For just a few--or maybe a lot more ideas--try combining some of the ideas you already have.

"You're absolutely right, Dudley!" agreed Mr. I. "We'd actually have several thousand more possible combinations! But let's give up for today, okay?"

And at that, Mr. I returned to his workshop to think a few more inventor-type thoughts, while Max, Maybelle, and Dudley began walking home--talking about peach ice cream with bits of pineapple and peaches in it; cimmamon flavored ice cream with cherries and pecans in it; and egg nog ice cream with bits of marshmallow in it. Max thought mainly about honey flavored ice cream with razzleberry chunks!

FLAVORS

EXTRA GOODIES



FLAVORS

Cranberry
Watermelon
Cantaloupe
Carrot
Green bean
Spinach
Cabbage
Tomato
Celery
Potato
Onion
Corn
Popcorn
Potato Chip
Cottage cheese
Buttermilk
Whipped cream
Egg nog
Steak
Pork chop
Peanut butter
Molasses
Dill pickle
Chili
Root beer
Coola Cola
Licorice
Peppermint
Bubblegum
Cinnamon
Nutmeg
Clove

Review

1. You can always find new ideas, if you try.

2. Any of us can learn to think of new ideas.

3. With Mr. I's thinking methods (PART CHANGING, FIND SOMETHING SIMILAR, CHECKERBOARD), we can usually think of hundreds of ideas for many kinds of problems.

4. With the PART CHANGING method, first we think of each part, or quality, of the thing we want to change. Then we think of different ways to change that part or quality.

5. With the CHECKERBOARD method, we list specific examples of one thing along one side of the CHECKERBOARD, and specific examples of another thing along the other side. The combinations of ideas found in the squares could be pretty good.

6. The CHECKERBOARD method can produce hundreds of ideas for some problems.

7. With the CHECKERBOARD method, many of the idea combinations will be useless--which really doesn't matter, because some of the ideas will be new and quite good (which is what counts).

8. One way to use the FIND SOMETHING SIMILAR method was to just think about important problem words. The ideas you find are SIMILAR TO that problem word.

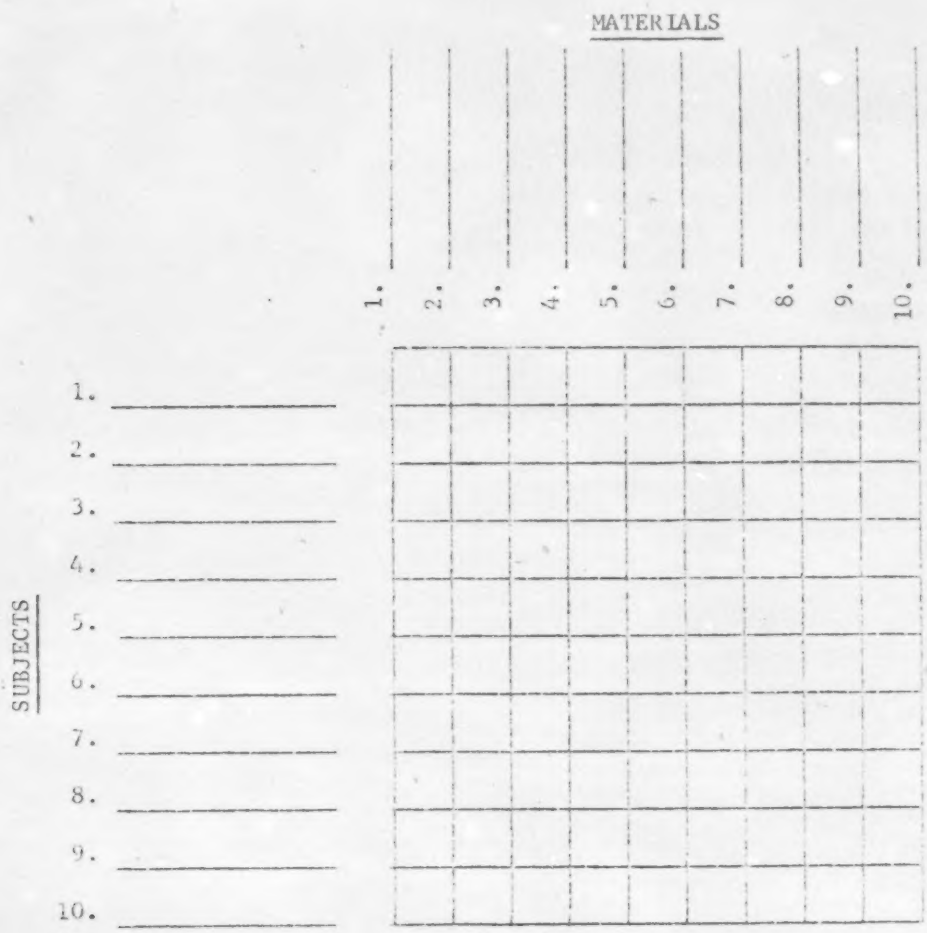
9. A good CHECKLIST can help you find many unusual ideas-- ideas you might never think of without the list.

10. Creative thinkers are always interested in wild ideas. They know that good ideas often start from ridiculous-sounding ideas.

11. Always write down all ideas, good and bad. It's easier to go back and throw out bad ideas than it is to remember all of the ideas.

12. For just a few--or maybe a lot-- more ideas, try combining some of the ideas you already have.

1. Your art teacher has told everyone in the class to do one painting this year that is as different as possible from the type of paintings you've always done. To help find ideas, complete the checkerboard started below, putting subjects (things you could "paint") along the side and materials (stuff to "paint" with) along the top.



2. The traffic during noon hours and after school makes it very difficult (and dangerous) for students crossing the streets, even with traffic patrol guards. Think of as many ways as you can to solve this nasty traffic-student-tie-up problem.

CHAPTER IX: Mr. I Teaches the Four Problem Solving Steps

"Mr. I," began Dudley, "I don't know exactly how to say this, but I think there must be at least some problems that are awfully hard to solve, even with your thinking methods."

"What he's trying to say," added Max, "is that your idea-finding tricks just don't work for every kind of impossible problem."

"I think I know what you mean," laughed Mr. I, as he lit his pipe, blew out the match, then tossed his pipe into the waste paper basket. "But first, let's agree that no problem is impossible. Good idea-finders just don't believe in the impossible!"

Good idea-finders just don't believe in the impossible.

"You've said that before," replied Maybelle, returning the dusty pipe to its owner.

"But I still don't believe it!" said Max. "C'mon, admit you can't solve every problem in the world!" For some reason, Max was unusually crusty that Saturday.

"Well, Max," answered Mr. I, "I admit there are certain problems that are very difficult to solve...and maybe some of our idea-finding methods are hard to use with these problems."

"Then what do we do?" asked Maybelle.

"Yeah," echoed Max, "what do we do?"

"You see," injected Dudley, trying to clear up what everybody meant, "I have a little problem. Christmas is coming and I need to earn a little money, and..."

"He means," corrected Max, "he needs to earn lots of money!"

"Anyway," continued Dudley, giving Max another be-quiet-you-crusty-bear stare, "that's my problem, I really could use a few dollars."

"We thought of using your PART-CHANGING method," said Maybelle, "but we didn't know what parts to change! So then we made a CHECKLIST of different kinds of money--like nickels, dimes, pesos, rubles, shekels, yen, and francs--but that wasn't much help either!"

"And I let your canary out, too, Dud!" added Max, helpfully.

"So now you've got another problem!"

"With problems like these," chuckled Mr. I, "even if some of our idea-finding methods don't seem to help, we can still be very systematic problem solvers!"

"Well..how..do..we..do..that?" asked Max, trying to ride Mr. I's triple-action super-ball powered pogo stick.

"The first step," said Mr. I, "is simply to clearly understand your problem!"

> The first step in solving problems is simply to clearly understand your problem.

"Oh, I understand the problems all right!" answered Dudley. "I need to earn some money and it looks like I need to catch my canary!"

"It's not quite that easy, Dud," said Mr. I, with that serious look that meant he was going to say Something Important. "Remember, we said last week that we can make problem solving easier if we state our problem very generally."

"I remember!" cried Maybelle. "You said if we define the problem very generally, we open our minds to more kinds of ideas. We used the mouse trap example, remember Dudley?"

"Yeah, I remember," grouched Dudley, a little unhappy that he didn't remember first. "We said that we wouldn't try to invent a better mouse trap, because what we really want--in a more general way--is to get rid of mice. A mouse trap is just one way to get rid of mice!"

If we state our problem very generally, we open our minds to more kinds of solutions. This makes problem solving easier.

"Now Dudley," said Mr. I. "How would you state your two problems in very general ways?"

"Well," thought Dudley. "I guess my first problem isn't really to find a job and earn some money. The real problem is simply to get money--any old way!"

"Exactly!" smiled Mr. I. "Earning money, with a job, is just one way to get money."

"That's right, Dud," agreed Max. "Stealing money is a Much Easier way to get rich!"

"Hold it Max!" interrupted Mr. I, very quickly. "That's not quite what I meant! I think we can find a few honest ways to get some Christmas money. First, Dudley, can you state the canary-catching problem more generally?"

"I can!" sang Maybelle, before Dudley could speak. "The problem really isn't to catch the canary. The real problem is to get the canary back into his cage. And..."

"Don't tell me, I already know!" said Dudley, frowning. "Catching the canary is just one way to get the bird back. There are other ways, right?"

"Right!" agreed Mr. I. "So, we've learned to clearly understand our problem and to look at it in a very general way. The next step in systematic problem solving is to look over what information you have on the problem, and think of some main types of solutions."

After we clearly understand our problem, and look at it in a very general way, the next step is to look over what information we have and suggest some main types of solutions.

"Now for your money problem, Dudley," continued Mr. I, "what might be some main types of solutions?"

"I already thought of working," answered Dudley. "Maybe I could borrow some money--is that what you mean?"

"I'd loan you some cash, Dud," offered Max, cheerily, "but I don't have a thing in my pockets!" Then Max noticed, to his sad surprise, that he didn't even have any pockets!

"So far, so good!" laughed Mr. I. "Now, Dudley, can you think of one more main type of solution to your money problem? Think of an ideal solution--what would be a perfect way to get some money?"

Sometimes, you can find ideas by thinking of ideal or perfect problem solutions.

"That's easy!" burst in Maybelle again. "The perfect way to get money would be for the money to come to you! Right?"

"I was just going to say that!" growled Dudley.

"So you have three main types of solutions for the money problem," said Mr. I, "earning money, borrowing money, or somehow having money come to you."

"And stealing!" reminded Max. "Don't forget that idea. It was mine!" Max had already forgotten that they were only interested in honest money-getting ideas.

"Max!" cried Maybelle, "you've already forgotten that we're only interested in honest money-getting ideas!"

"Anyway," continued Mr. I, quite unruffled by the interruption, "the third problem-solving step is to think of some specific ideas related to each main idea--like different ideas for earning money, for borrowing money, and some ideas for having money come to you."

After thinking of some main types of solutions for a problem, think of specific ideas for each main type of solution.

"Different ideas for earning money," thought Dudley. "I suppose I could ask my neighbors to let me shovel snow, cut lawns, rake leaves, wash windows, sweep up garages and basements, or baby sit."

"And you could run errands for your creaky old grandmother!" added Max. Sometimes, Max wasn't very careful how he said things.

"Come to think of it, Mr. I," said Dudley, remembering that Mr. I once said to look around for ideas, "your workshop could use some cleaning up, too!"

"Indeed it could, Dud! Remind me later," answered Mr. I. "I'm sure you could find other jobs, too--like at a grocery store. Now the second main idea was to borrow some money. Any ideas here?"

"How about an advance on your allowance, Dudley?" suggested Maybelle. "I bet your father would understand. Christmas is Christmas, after all."

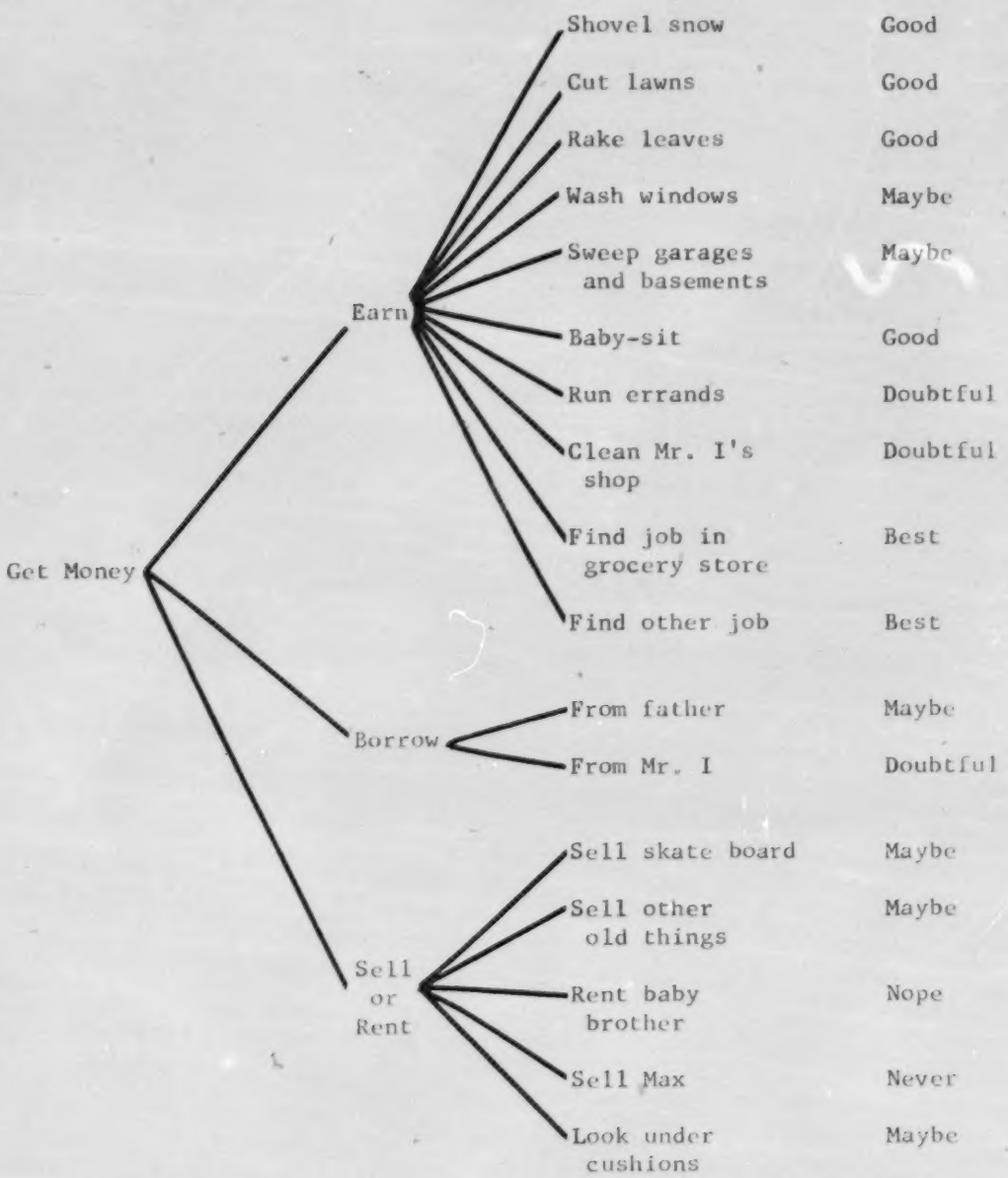
"Well..." agreed Dudley, "I'm sort of afraid to ask. I already owe him my allowance for the next 34 years!"

"Mr. I will loan you some money!" offered Max, very generously. "He'll even give it to you! Just tell him how much you want!"

"AHEM!" coughed Mr. I, which meant that HE wanted something to say about all this. "We'll discuss that money-getting idea later! Let's find some more ideas first. Now where were we?"

"We were going to think of ways that money could come to Dudley," answered Maybelle. "I have an idea! You wouldn't have to work or borrow money if you could sell or rent something!"

Step 1	Step 2	Step 3	Step 4
Clearly Understand the Problem and State it Generally	Find Main Types of Solutions	Find Specific Ideas for Each Main Solution	Choose Best Ideas



"Say I could sell my old skateboard for a start!" replied Dudley.

"Or some of your old things that you don't use any more," said Maybelle, adding to Dudley's idea.

"Maybe you could rent your baby brother!" said Max, helpful as usual. "Does he still bite?"

"Or how about selling Max!", said Maybelle, playfully. Then she had another idea. "Sometimes, you can find a few pennies and nickels under sofa cushions."

"That's plenty for now," said Mr. I. "Let's get on to the last problem solving step. Can you guess what it is?"

Dudley quickly answered this one before Maybelle could say anything. "It looks like," he began, "the only step now is to choose which ideas would work best."

"Exactly!" agreed Mr. I.

The last systematic problem-solving step is to choose which solutions would work best.

"Well," said Dudley, looking over his list of ideas for getting money, "it looks like the earn-money ideas are the best ideas here."

"Which is exactly what we knew when we started!" growled Max.

"You're both probably right!" laughed Mr. I. "But maybe we can use some of the other ideas, too."

"HUMPH!" scowled Max. "You're great problem solvers! Just GREAT! Dudley's still broke and his canary is still loose!"

"GLEEP!" cried Maybelle, "we forgot about the canary problem!"

"Then let's quickly run through our problem solving steps and see what ideas we can find," said Mr. I. "Now what were those steps?"

"First, we clearly understand the problem and look at it very generally," said Dudley. "The second step is to list some main types of solutions, and the third step is to find some specific ideas for each main type of solution."

"And the last step," added Maybelle, "is to choose which are the best ideas!"

Our four problem-solving steps are:

1. Clearly understand the problem and state the problem very generally.
2. List main types of solutions.
3. List specific ideas for each main type of solution.
4. Choose best ideas.

"Now we've already decided that the real problem, very generally, is to get the canary back into his cage," said Mr. I.

"And catching the canary is only one main type of solution," said Dudley.

"The ideal or perfect way to solve the problem," said Maybelle, remembering to think of ideal problem solutions, "is to have the canary return himself to the cage! This would be another main kind of solution."

"Good!" said Mr. I. "We have two main kinds of solutions, catch the canary or have the canary catch himself. Now here's a hint for thinking of some specific ideas for each main idea. Twice before, we found some ideas just by thinking about important problem words. So for this problem, think about 'catching things'--and see if we find any ideas."

Sometimes we can find ideas just thinking about important problem words.

"Well," began Dudley, "we can catch things with a butterfly net or maybe some kind of trap. Do you think we could find some kind of bring-'em-back-alive bird trap?"

"I'm sure we could!" said Mr. I. "We'll call the Bird Watcher's Club later to see if they can help us out."

Quite often, it helps to ask an expert!

Then Max added, "Maybe you could borrow a cat--they catch things!"

"I don't know about that idea, Max," said Mr. I. "But maybe if we can find the canary in a tree we could use some kind of knock-out gas. I believe some zoo and circus animals are caught that way."

Maybelle had been looking at the other main idea and asked, "Couldn't we have the canary catch himself by putting his cage outside, with some canary food in it?"

"Oh yes!" said Max. "Some bird-seed ice cream ought to do it!"

"A baited cage might work," agreed Mr. I, "or maybe you could just leave a few house windows open--and let the canary catch himself by flying back into the house!

Step 1	Step 2	Step 3	Step 4
Clearly Understand the Problem and State it Generally	Find Main Types of Solutions	Find Specific Ideas for Each Main Solution	Choose Best Ideas
Get Canary in cage	Catch Canary	Butterfly net	Doubtful
		Canary trap	Good
		Knock-out gas	Doubtful
		Borrow a cat	Nope
	Have Canary catch himself	Put cage outside, door open, with food inside	Good
		Open house windows	Good

"Now the last step was to choose the best ideas," reminded Mr. I.

"Why not try several of them at once!" answered Dudley. "I'll put his cage outside, with the door open and his favorite bird seed inside. Then I'll call the Bird Watcher's Club about a bird trap. We can also open some house windows."

"I think those are the best ideas, too!" agreed Maybelle.

"So do I," agreed Mr. I. "And I also think it's been a long afternoon."

So with pleasant good-byes, the group left.

Again

1. Our four problem solving steps are:
   a. Clearly understand the problem and state it very generally.
   b. List main types of solutions.
   c. List specific ideas for each main type of solution.
   d. Choose best ideas.

2. By stating our problem very generally, we open our minds to more kinds of solutions. This makes problem solving easier.

3. Good idea-finders just don't believe in the impossible.

4. You can usually find ideas by thinking of ideal or perfect problem solutions.

5. Sometimes, you can find ideas just by thinking about important problem words.

6. Quite often, it helps to ask an expert.

Problems

Below are two problems which can be solved using our four problem solving steps.

For each problem, the first step (UNDERSTAND THE PROBLEM AND STATE IT GENERALLY) and the second step (LIST SOME MAIN TYPES OF SOLUTIONS) are already done.

You just need to do the third step (FIND SOME SPECIFIC IDEAS FOR EACH MAIN TYPE OF SOLUTION) and the fourth step (CHOOSE YOUR BEST IDEAS).

Problem 1. Think of ways to give your pet hamster a bath. He thoroughly dislikes water, to say nothing of soap!

Step 1: Clearly Understand the Problem and State it Generally	Step 2: Find Main Types of Solutions	Step 3: Find Specific Ideas for Each Main Solution	Step 4: Choose Best Ideas (Best, Good, Maybe, Doubtful, Nope)
The real problem is to separate the dirt from the hamster.	Put hamster in soapy water, rinse	_____	_____
		_____	_____
		_____	_____
		_____	_____
	Put soapy water on hamster, rinse	_____	_____
		_____	_____
		_____	_____
		_____	_____
	**Other ways to separate dirt and hamster?	_____	_____
		_____	_____
		_____	_____
		_____	_____

**Hint: How are rugs, clothes, etc., cleaned without water?

Problem 2. Think of ways to convince a younger brother or sister to do something for you.

Step 1: Clearly Understand the Problem and State it Generally	Step 2: Find Main Types of Solutions	Step 3: Find Specific Ideas for Each Main Solution	Step 4: Choose Best Ideas (Best, Good, Maybe, Doubtful, Nope)
Get younger brother or sister to do something	Bribe	_____	_____
		_____	_____
		_____	_____
		_____	_____
		_____	_____
	Threaten	_____	_____
		_____	_____
		_____	_____
		_____	_____
		_____	_____

CHAPTER X: Dudley and Max Learn to FIND Problems and Learn How Important New Ideas Are.

"Now I've got a problem," announced Dudley, as he and Max entered Mr. I's workshop. "Now that we know so many ways to find ideas, how do we find problems to solve?"

"We only need ideas when we have trouble," added Max. "So now Dudley wants to know how to be a trouble-maker."

"You mean a problem finder," laughed Mr. I. "But either way, I'm glad you asked. It is important to be able to find problems. Actually, problems are everywhere--we just have to learn to see them.

Dudley Bond, Problem-Finder

Max Bear, Problem

Problems are everywhere; we just have to learn to see them.

At this, Max began looking carefully about the room and up and down Mr. I. Then he soberly announced, "They're not everywhere, because I just looked. I didn't see any problems Anywhere or Everywhere!"

"You probably didn't," agreed Mr. I. "But they're here, if you know how to look. Now I'm going to give you some hints on just how to look in order to be able to find problems.

"First of all," continued Mr. I, "remember that there are always better ways of doing just about anything."

There are better ~~ways of doing~~ just about anything.

"Anything?" asked Dudley.

"Sure, I'll give you an example. What was the first thing you did when you woke up this morning?"

"I stopped snoring and opened my eyes," injected Max. "Can you think of a better way of doing that?"

Mr. I chuckled, "Well, I guess you've got me there, Max. Dudley, what did you do this morning after you opened your eyes?"

"Well," reflected Dudley, "first I sat up in bed, tossed the covers back, and then ... "

"Hold it!" interrupted Mr. I. "You've found a problem already! Dudley, what might be a better, or an ideal way to toss the covers back?"

"I think I see what you mean," smiled Dudley. "I guess there are even better ways to toss the covers back. If they were 'perfect' covers, they'd probably toss themselves back, and do it carefully so they wouldn't get wrinkled."

And Max added, "But they shouldn't toss themselves back in the middle of the night and scare the bejeebers out of you!"

"I think you get the idea," said Mr. I. "An Automatic Cover Puller may not be the world's greatest invention, but the point is that there are easier and better ways of doing just about anything."

"All right," continued Mr. I, "let's try another general principle: Any man-made object can be changed or improved.

Any man-made object can be changed or improved.

"Let's take several quick examples. What have you got in your pockets, Dudley?"

Dudley reached into his front pockets with both hands. "Huh!" he said to himself, apparently quite surprised at the contents of his own pockets. "I have a key I found, a broken pencil, a dull pocket knife, and a wad of paper I forgot to throw away."

"If you think about what you just said," smiled Mr. I, "I believe you'll find a lot of problems to solve--and they were right in your own pockets. For example, what's one problem with the key?"

Even Max saw this one. "The problem, as I see it," began Max, trying to appear very serious and wise, "was that someone lost the key in the first place."

"And what's a perfect way to keep people from losing keys?" asked Mr. I.

"One way," answered Dudley quickly, "is to use locks that don't need keys. At school, we already use combination locks that don't have keys. Maybe locks that open by pushing buttons or pulling levers would be

good ... or even writing a 'magic' word on a little screen could open a lock."

"Not bad, Dud," smiled Mr. I, who liked to see Dudley using his imagination. "Now, how could you improve your broken pencil?"

"By making it unbreakable, of course," laughed Dudley. "And while we're building a better pencil, maybe we could invent pencils that have an endless supply of lead, write in different colors, or make wide or thin lines when you want them to."

"Very good. You're thinking of lots of unusual ideas that certainly would improve an ordinary pencil.

"Remember the PART CHANGING method?" continued Mr. I. "You could think of lots more ways to change a pencil by thinking first of the different parts or qualities--like the material it's made of, the color, the size, and the shape--and then thinking of ways to change each part. Just about anything can be improved with the PART CHANGING method.

Just about anything can be improved with the PART CHANGING method for finding ideas.

"Now what about the pocketknife. Do you see any problems there?" asked Mr. I.

"The first problem is that it's dull," answered Dudley. "A perfect pocketknife would either never get dull, or at least it would sharpen itself." Then he added "Maybe a really good pocketknife would have just one blade that could somehow become longer or shorter when you wanted it to."

"With our CHECKLIST of ways to improve things," said Mr. I, "I'm sure we could think of dozens of ways to change or improve your pocketknife."

Mr. I's CHECKLIST is another way to improve just about anything.

Mr. I continued, "We could even improve that wad of paper you have--perhaps by thinking of ways to get rid of it without finding a trash can."

"If you don't use a trash can," growled Max, "that's litterbugging!"

"That depends," chuckled Mr. I. "If the paper would dissolve in water, you wouldn't need a trash can ... and you wouldn't be litterbugging, either."

"Okay," said Dudley, anxious to move on. "So far you've said we can find problems by looking for better ways of doing things, and by

looking for ways to improve just about any kind of object. Are there any other ways to find problems?"

"Sure," answered Mr. I, "one other way to find problems is simply to become aware of difficulties and nuisances--those little things that sometimes make life a little uncomfortable."

One way to find problems is to look for difficulties and nuisances.

"I know exactly what you mean," agreed Max, thinking of some of his own pet problems. "We should invent bees without wings so they'd have to climb up to their nests and honey ... and since they probably wouldn't want to climb very far, the honey would be close to the ground ... which is much better, because I don't like to climb either.

"And another thing," added Max, remembering another difficulty, "berry bushes should have berries on them all the time, instead of just in the fall ... and they should be cafeteria-style bushes--with all kinds of berries on each bush."

"Okay," laughed Mr. I, "I'll look into wingless

bees and year-around, cafeteria-style berry bushes. Anything else?"

"No, thank you," answered Max, very grateful indeed, "that will be just fine for now!"

"You may have to invent shorter flowers, too," added Dudley, trying not to laugh. "Because wingless bees would have to climb up the stems to get their pollen."

"I'll work on that, too," assured Mr. I, with another chuckle.

"I have another question," said Dudley. "What good will it do me to learn how to find problems and find ideas? Maybe someday I'll get a job, where I don't need to think of new ideas. Couldn't that happen?"

"That's a very important question, Dudley," replied Mr. I. "But I think you'll find that any job, no matter how small or how great, can use new ideas for easier, better, faster, and safer ways of doing things, for saving money, for keeping workers happy, for finding customers--or you might even need ideas for finding a better job!"

Any job, no matter how small or great, can use new ideas for easier, better, faster, and safer ways to do things, for saving money, for keeping workers happy, for finding customers, and even for finding new jobs.

"But what if my job were to dig a hole in the ground?" asked Dudley. Then he quickly answered his own question. "Oops, I know already! I could think of ideas for an easier way to dig the hole--perhaps with a machine--or maybe invent different kinds of shovels for different kinds of holes!"

"Another thing. Since shovels are kind of heavy and drab looking," added Mr. I, "I'll bet you'd prefer a lighter shovel or perhaps if the shovel were painted some light color, the work might seem easier."

"I see what you mean, Mr. I," smiled Dudley. "I guess even hole-digging could use some new ideas!"

"I'll give you some more examples," answered Mr. I. "Since all jobs, and all the people that work at those jobs, can benefit from new ideas, many offices and factories have 'Suggestion Boxes' where workers can tell their bosses of new ideas. Often, the worker is paid for suggesting how to save money, how to speed up something or how to improve whatever the company sells.

"But some jobs," continued Mr. I, "naturally need more new ideas than other jobs.

Though some jobs need more new ideas than others, all jobs can benefit from new ideas.

"Let's take musicians, for example. Many musicians simply learn to play the same kinds of musical instruments that have been played for hundreds of years and they play the same music that everyone else plays. The musicians who become the most famous, though, usually have thought of some new ideas--or even just one idea. It might be a new kind of music or a new sound. Or maybe just new costumes or some other gimmicks. With the BEATLES, for instance, their long hair helped them become famous--they invented the 'Beatle haircut.'"

"I see," said Dudley. "A musician doesn't have to think of new ideas, but he probably will be a more popular musician if he does."

"That's right, and some other jobs need ideas even worse."

"Well if they need worse ideas," chuckled Max, "they should see you. Your ideas are some of the worst I've ever seen!"

"Max!" gasped Dudley, very surprised at such a remark.

"What I meant," continued Mr. I, who realized Max was just trying to be funny, "was that if you are thinking about becoming something like a scientist, engineer, writer, artist, architect, executive, business owner, store manager, or interior decorator, much of your success will depend on how creative your ideas are. All of these types of jobs need lots and lots of good new ideas."

In some jobs, your success will depend on how well you can think of good new ideas.

"I bet that's right, Mr. I," answered Dudley, seriously. "I sure hope I can even get better at thinking of good new ideas."

"You can become better at thinking, Dudley," said Mr. I, very sure of himself. "Anyone can become a better thinker than he is."

> Anyone can become a better thinker than he is.

Mr. I continued, "The funny thing about thinking of new ideas is that most people simply don't take the time to try. It's usually easy and fun."

"I have to go now, Mr. I," said Dudley. "Thank you very much for helping me learn to see problems and helping me understand how important new ideas really are!"

"Yep, goodbye and thanks," echoed Max. "And don't forget about the bees-with-no-wings and the cafeteria-style berry bush."

"I won't," smiled Mr. I. "I won't."

Review

1. Problems are everywhere, we just have to learn to see them.

2. There are better ways of doing just about anything.

3. Any man-made object can be changed or improved.

4. Just about anything can be improved with the PART CHANGING method for finding ideas.

5. Our CHECKLIST is another way to improve just about anything.

6. One way to find problems is to look for difficulties and nuisances.

7. Any job, no matter how small or great, can use new ideas for easier, better, faster, and safer ways to do things, for saving money, for keeping workers happy, for finding customers (and even for finding new jobs).

8. Though some jobs need more new ideas than others, all jobs can benefit from new ideas.

9. In some jobs, your success will depend on how well you can think of good ideas.

10. Anyone can become a better thinker than he is.

Last Page of Things To Do (whew!)

1. Find three or four things in your pockets or purse. How could each of these things be changed or improved?

Hint 1: Think of perfect solutions.

Hint 2: Pick out parts or qualities. Then think of ways to change each part or quality.

Thing one : _____

Changes or Improvements: _____

_____

_____

_____

Thing two : _____

Changes or Improvements: _____

_____

_____

_____

Thing three: _____

Changes or Improvements: _____

_____

_____

_____

Thing four : _____

Changes or
Improvements: _____

_____

_____

_____

2. How could new ideas help each of these people in their jobs? (That is, what would they need new ideas for?)

A cook in a restaurant.

_____

_____

A president of a soup company.

_____

_____

_____

A janitor.

_____

_____

A school teacher.

_____

_____

A football coach.

_____

_____